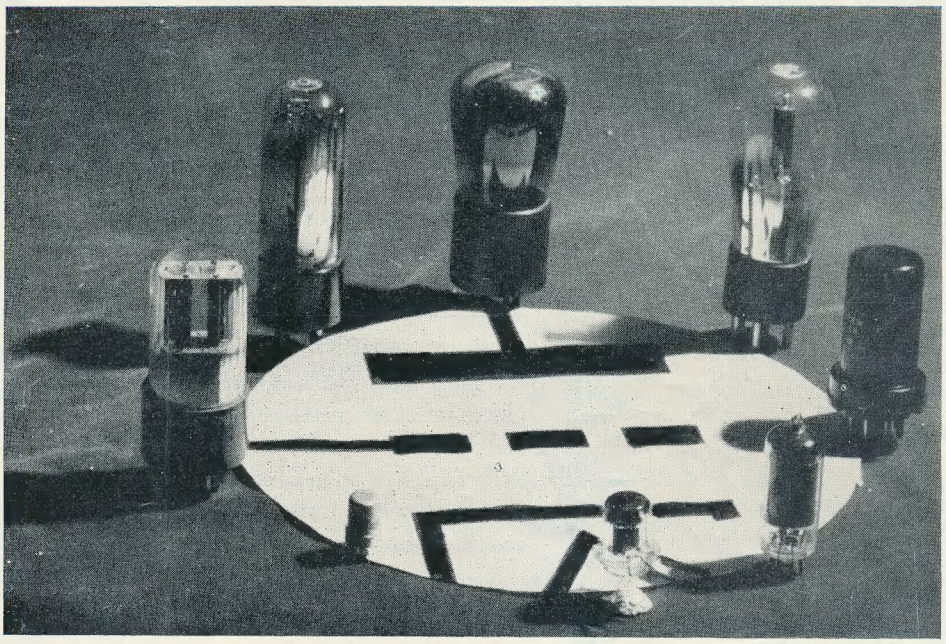
AMATEUR RADIO

JUNE 1965



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"AMATEUR RADIO"

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OUR COVER

Around the symbolic figure for a triode has been arranged a series of triode valves covering the period from 1930 until 1965. Reading clockwise from the cathode symbol, the valves are: 6CW4, 6SN7GT/G, 30, A415, 27, 6C5, 6C4, and a 954. How many readers can remember when each valve was first marketed and used in Amateur equipment?

FEDERAL COMMENT

★

W.I.A. ADMINISTRATION

The Wirelsss Institute of Australia is well known as the organisation within the Commonwealth which represents the Amateur Radio Service but it is also true to say that many amateurs are ignorant both as to how it functions and what it does for the Amateur. Although over 5,000 strong, the membership is spread over a comparatively vast area requiring administration from a central organisation which at the same time must encompass liaison with local and State administration. This is achieved by the Federal Council composed of a member elected in each Division of the Institute whose special function is to act as the representative of his Division on behalf of its Council and members, the requirements being carried out by the Federal Council's ex-officio office—the Federal Executive. The Federal Executive, therefore, becomes the central organisation empowered under a Federal Constitution to carry out the work of the Federal Council on behalf of the Divisional Councils which in turn act on behalf of their members.

If you, as a member, have a complaint which affects Amateur radio in general and not a complaint of a purely domestic nature, then you need to know who holds the office of Federal Councillor in your State or Division. For the period 1965-66 the following are the people you should contact:

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Knowing your Federal Councillor, you can then make contact with him direct (or through any member of your Division's Council) and place your problem before him. From his experience he will know whether the problem is one which can be attended by your local Council or whether it should be referred to the Federal Executive.

If your problem is one requiring Federal Executive action then your Federal Councillor will see that it is directed to the Executive in a manner prescribed for him under the Federal Constitution and you can expect to hear the result of this action in due course. The Executive for 1965-66 is composed of the following members:

Federal President	....G. Maxwell Hull VK3ZS
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For your information the Federal Executive has the power to co-opt people to carry out specific tasks and the following are so co-opted for 1965-1966 to do just this:

Federal QSL Manager	....Ray E. Jones VK3RJ
Federal Awards Manager	....Alfred Kissick VK3KB
Federal Historian	....George Glover VK3AG
Federal Contest Committee Manager	....Jim Rumble VK6RU

If you know who runs your Institute you can talk to them on the air because they are all active Amateurs, dedicated to their tasks on your behalf and on behalf of the Amateur Radio Service in the Commonwealth of Australia and its Mandated Territories. They want to help you and your hobby and look forward to your co-operation during the next 12 months to make their term of office a fruitful one for the Institute and the Amateur Service in general.

—G. MAXWELL HULL, Federal President.

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AN EFFECTIVE LOW-COST TRANSMITTER

HAROLD L. HEPBURN, VK3AFQ*

THE transmitter described in this article is the outcome of some experiments on efficiency modulation carried out by the writer during a search for a modulation system for a low cost, low drain, rig that might have application in the portable sphere.

Results over the 18-month period it has been on the air have been most satisfactory and it was felt that a brief description of the rig might be of interest to other readers of this magazine.

Whilst the unit described operates only on 160 and 80 metres, there is no reason why the frequency range could not be extended by using, say, the Geloso v.f.o. in the exciter section.

The more widely used methods of "efficiency" modulation where the modulating voltage is applied to electrodes other than the plate, normally call for a resting carrier which is about half of the full c.w. carrier level. Valve efficiency is low and in most cases the depth of modulation leaves much to be desired.

A screen modulation circuit described in the R.S.G.B. Handbook and known as the "gated screen" method appeared to be an improvement since the resting carrier is only one-fifth to one-eighth of the full c.w. level and claims were made that full modulation is obtained at all carrier levels. In addition, it is claimed that no over modulation could occur.

Allowing that their claims are correct—and experience with this transmitter has indicated that they are—then it appeared that considerable economies could be effected in the section of the transmitter which is normally the most expensive—the power supply.

DESIGN CONSIDERATIONS

Taking as an example the old familiar 807 and looking at its plate power requirements under several conditions, some interesting facts emerged.

Let us suppose we have 600 volts of h.t. available, then if we decide to operate the 807 as a plate and screen modulated class C amplifier, a la handbook, we have to allow for a steady current drain in the p.a. of 100 mA. or 60 watts. If we decide phone is not required and we will be working c.w. only, we can reduce this requirement on the power supply by assuming that the transmitter has a 40% duty cycle—that is the "dit" and "dahs' only occupy 40% of the transmitter "on" tune. This really does mean that we could use a 600v. 40 mA. power transformer to supply the p.a. plate provided we make the filter condensers large enough to cope with the peak current requirement.

If we go further and assume we are going to use the 807 for speech only and that we are going to use normal screen modulation, then we have to provide a **steady** current of 50 mA. (half the c.w. maximum) and a bit more for the periods when we are actually modulating. If we assume that the speech duty cycle is 20% (a bit high, but a nice round figure), then this is equivalent to saying that we have to provide for 50 mA. steady drain plus the equivalent of another 10 mA. to cope with the speech variation. Provided once again we provide good dynamic voltage regulation by making the filter condensers large enough we can get away with a 60 mA. rating on the transformer.

Using "gated screen" we can do even better. Since the resting plate current is only one-fifth of the full current then we have only to supply 20 mA. average steady current plus the equivalent of another 20 mA. to deal with the speech power. Total is only 40 mA. or two-thirds of other efficiency methods. Note that this average current requirement is the same as the c.w. example, so that we can use either mode.

If we want to squeeze some more efficiency out of the p.a. tube we can run at higher voltages. The 807 is rated at a plate voltage of 600 under plate and screen modulation conditions. This means it has to withstand a peak voltage of 1,200. Provided you keep the average plate dissipation within specifications, you can, in fact, run an 807 with 1,200 volts on the plate and still not over run the tube. Both R.S.G.B. and A.R.R.L. Handbooks publish design data for 807 and 1625 linear s.s.b. amplifiers at these voltage levels.

Bearing in mind the foregoing, it was felt that normal broadcast transformers might well be able to provide the power for a 70-watt c.w./peak a.m. rig. The schematic of the completed transmitter is given in Figs. 1 and 2. Change-over switching is shown in Fig. 3, and meter switching in Fig. 4.

THE TRANSMITTER

The r.f. section of the transmitter consists of a 12AT7 v.f.o., a 6AM6 untuned buffer amplifier, a 6V6 buffer/doubler/driver, and an 807 final.

The 12AT7 oscillator is in a Franklin configuration since it enables the use of a two-terminal tank with one end earthed and because its output is constant over its tuning range of 1.75-1.90 Mc. The more popular Clapp circuit suffers from the disadvantage of giving less output at the h.f. end of its range. The lower, but more constant, output of the Franklin is overcome by the use of a 6AM6 buffer amplifier.

The 6V6 buffer/doubler provides ample drive on both bands; this drive being adjusted by the potentiometer in the screen circuit.

The 807 final uses a pi-tank output and the additional capacities required on 160 metres are brought into operation by a separate section of the band switch S3.

For netting purposes, h.t. is applied to the whole transmitter, but the p.a. is prevented from radiating by applying 105 volts negative to the screen. Since the negative supply is required

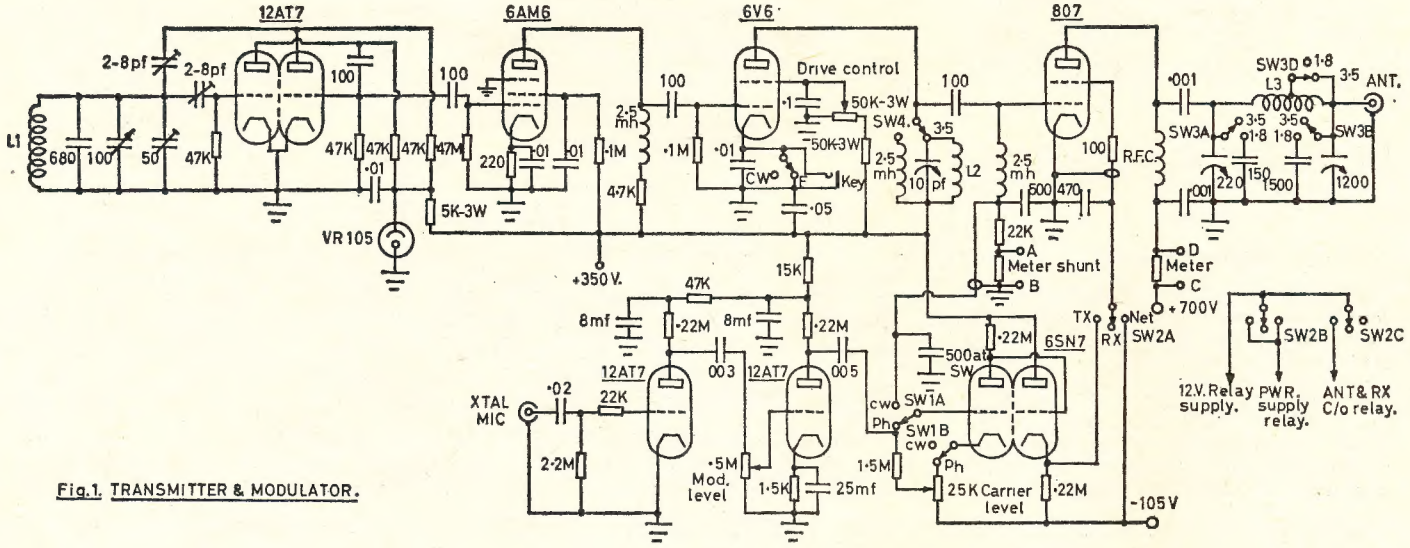


Fig.1. TRANSMITTER & MODULATOR.

* 4 Elizabeth St., East Brighton, Vic.

in any case for the modulator, this method of netting allows the use of a very simple control switching arrangement.

A meter is provided to read the grid and plate currents of the final.

THE MODULATOR

The modulator is particularly simple and consists of a 12AX7 speech amplifier driving the 6SN7 gating tube.

The first half of the 12AX7 uses contact potential bias (thus saving a couple of components), whilst the potentiometer in the grid of the second half acts as a modulation level control.

The 6SN7, connected in effect between the h.t. supply and the screen of the 807, "gates" voltage to the 807 screen at a rate and amount which is a function of the frequency and amplitude of the applied speech voltages from the 12AX7. For a more detailed explanation of the method of operation, the reader is referred to the R.S.G.B. Handbook.

The potentiometer in the cathode of the first half of the 6SN7 acts as a carrier level control, whilst the switching arrangement shown allows either phone or c.w. operation to be chosen.

The 100 ohm stopper resistance and the 470 pF. decoupler should be mounted directly at the screen pin of the 807. Any higher value of decoupler than the 470 pF. shown will cause some loss of "highs" in the speech and it may well be that a value of 330 pF. would give a crisper flavour to the audio.

POWER SUPPLY

The main h.t. for the final plate is provided by an old 385-0-385 volt 100 mA. transformer connected in a bridge circuit with secondary h.t. for the exciter and modulator being obtained from the original centre tap. The filament windings on this transformer were of the 2.5 volt variety and were used only to light a small "Tx on" pilot bulb. The filament power for all tubes was provided from a separate transformer, whilst a third small filament transformer, connected back to back, was used to provide the —105 volts bias supply.

The bridge rectifiers consist of a 5U4G and two 6AX4s, the latter tubes being t.v. booster diodes rated at 4,000 p.i.v. between heater and cathode. This high rating allows them to be run from the common filament supply with one leg earthed.

Some additional simplification could be achieved by using four of these tubes in the bridge and so eliminating the need for a 5-volt transformer.

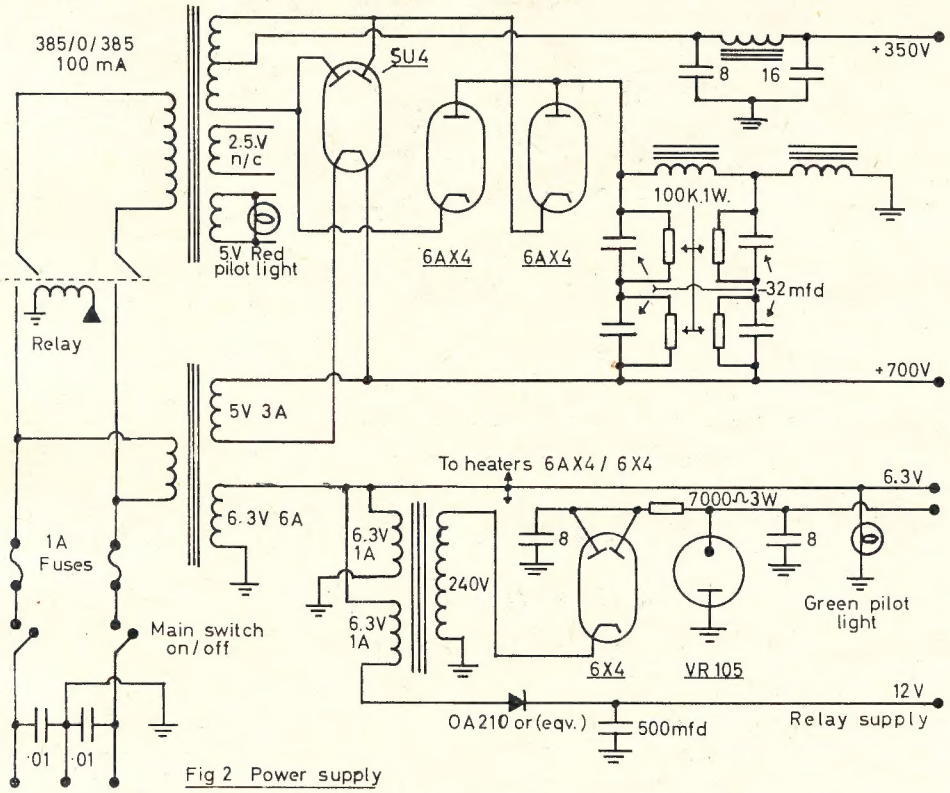


Fig 2 Power supply

In order to use broadcast-type smoothing chokes (which are not normally rated at much above 400 volts to frame) those used in the supply described are placed on the earthy side of the chain.

On load, the supply gave slightly over 700 volts main h.t. and about 340 volts of secondary h.t.

A simple supply is included to operate the antenna change-over and receiver muting relays.

CONSTRUCTION

The whole transmitter is constructed on two 17" x 8" x 2½" aluminium chassis. The front panels are standard 19" x 10½" rack mounting types.

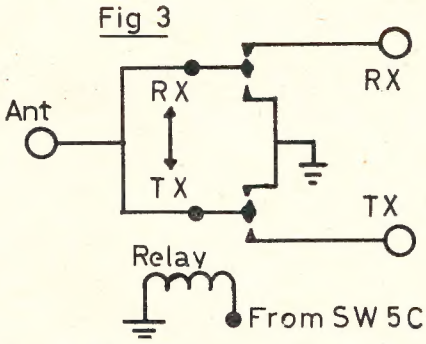
Triangular side pieces are used in the power supply to provide the necessary rigidity, whilst partitions made of 24-gauge galvanised iron are used on the transmitter chassis for the same purpose. These latter supports also serve as the side walls of screened compartments, one containing the v.f.o. tuning components, the other the final tube and its associated plate circuitry, including the pi-tank. When covers of 24-gauge galvanised iron are placed over these shields and fixed with PK screws, the whole unit is extremely rigid.

Fig. 5 shows the layout with the 12AT7, 6AM6 and the 6V6 in the space between the v.f.o. and final compartments. A 1½" space on the right hand side of the chassis contains the modulator and VR tubes. The octal socket on the right hand of the rear apron of the chassis is an outlet for supplying the receiver muting relay, whilst the small hole in the centre of the rear apron allows access to L2 in the plate circuit of the 6V6 driver.

Controls on the front panel, left to right, are (at the bottom) the microphone input socket, the carrier level adjustment control (this is a pre-set pot for safety), the key jack, SW4 and the net/rx/tx switch S2. Just above these controls and right at the bottom of the panel proper are (from left to right) the microphone level control and the c.w./phone switch S1 with the drive level potentiometer in the centre. The three large knobs are the v.f.o. tune and pi-tank controls. Between these last two is located SW3.

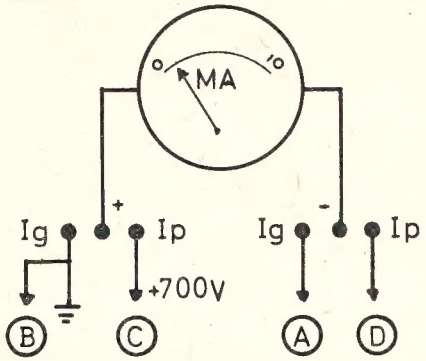
The Amphenol socket at the top left hand corner is the antenna input socket while the Belling Lee socket just below it is the off-take to the receiver. The antenna co-ax relay is mounted just behind these two sockets. The knob just below the meter is the range switch.

Fig 3



Note: Relay is ex SCR522
"SW5C" above should read SW2C.

Fig 4 Meter switching arrang.



Note: Switch to be break-before-make type. Two positions of SCR522 meter switch used.

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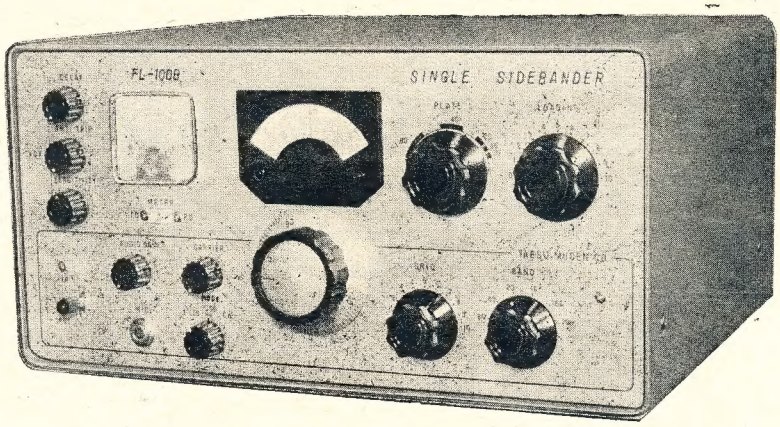

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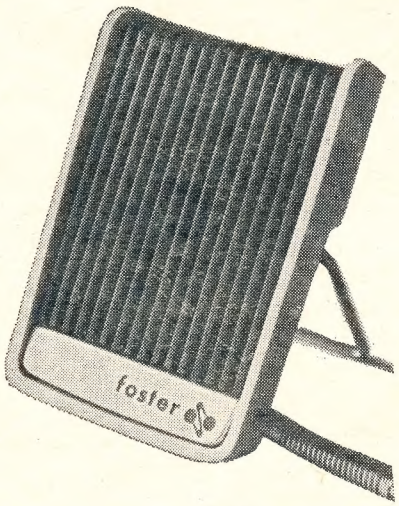

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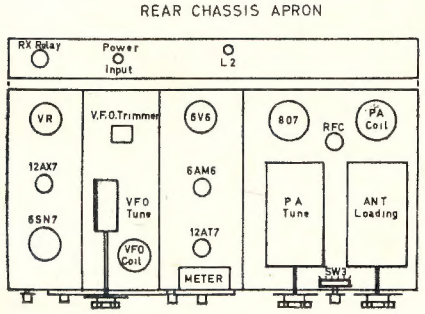
COIL DATA

L1—**V.f.o. oscillator coil.** 32 turns 20 s.w.g. enamelled wire on 1" diam. ceramic former, 2" long. Wound under tension.

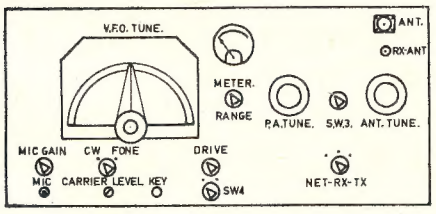
L2—**80 metre coil,** 6V6 doubler stage. Approximately 70 turns 36 s.w.g. enamelled pile wound on ½" diam. slug tuned former. Since this is mainly tuned by valve capacitances and circuit strays, some adjustment of the number of turns may be needed.

L3—**Pi-tank coil,** 807 plate. 28 μH., tapped at 17 μH.
44 turns 16 s.w.g., 1½" diam. spread over 3 inches. Tap at 23 turns for 80 metres.

The above coil assumes a plate voltage of 700, a maximum plate current of 100 mA. and a Q of 12. For other plate circuit constants, it is advisable to re-calculate the coil size using the A.R.R.L. or R.S.G.B. pi coupler design data.



CHASSIS-TOP VIEW.



FRONT PANEL.

Fig. 5.

OPERATION

The initial steps of checking wiring, setting the v.f.o. range and setting up the various plate tanks are normal to any transmitter and will not be described in detail.

At least 1 mA. of grid current should be available at the 6V6 on both bands and far more than the 2½-3 mA. drive for the 807 is available at the maximum setting of the drive potentiometer.

With the phone/c.w. switch in the c.w. position, the final is tuned to resonance and quickly loaded to 100 mA. Speed is essential here since under these conditions the power supply is overloaded. Then switch to the phone position and adjust the carrier level to 20 mA. plate current in the 807 by means of the 6SN7 cathode potentiometer. Speaking into the microphone will cause the meter to kick up to around 60-80 mA. while a sustained whistle should get you up to nearly 100 mA.

Like any screen modulated rig, the plate loading should be as heavy as you can get it since light coupling to the antenna (and resultant low plate current) does detract from speech quality. There is also strong evidence that low loading leads to splatter.

GENERAL COMMENTS

As the plate current of this transmitter varies between 20 and 100 mA. (i.e. between approximately 16 and 70 watts input), it is not surprising that the received signal will show a similar (but less pronounced) tendency to do the same. If the receiver has a good a.v.c. system the effect may not be a problem but if the a.v.c. system is not good, then distortion will occur in the receiver and may lead to adverse reports. Ideally, the short attack, slow decay characteristics of the better sideband a.v.c. systems are to be preferred.

Tests conducted with local Amateurs appear to indicate that the speech quality improves slightly as the resting carrier is raised, but whether this improvement was inherent or due to the a.v.c. characteristics of the receiver is still obscure. Let it be emphasised that these changes in audio quality were very small and over many months the author has used a resting carrier of 8 mA. without comment.

In conjunction with an inverted vee antenna on 80 and a 200 ft. long wire (with a.t.u. of course) on 160 metres, this rig has given an excellent account of itself and appears to have more "penetrating" power than a conventional plate and screen modulated rig of equivalent peak power (i.e. about 20 watts d.c. input to the final).

As a final comment—and perhaps the most important one—the 807 is acting as a class C linear amplifier.

With minor adjustments to the operating angle and a slightly more complex arrangement of the gating tube, the final would accept and amplify sideband signals. In addition, the efficiency of the tube would approximate to 70% rather than the lower levels associated with class AB1 or AB2. For further details on this interesting possibility, readers are referred to the March 1964 issue of "CQ". ●

☆

AND SO ON AD LIB

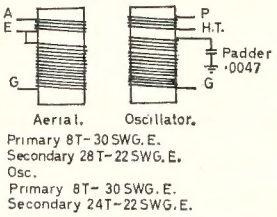
If you want to be "with-it" these days you have to know a tremendous amount about radio that is not technical at all. For instance, a few thousand valve and transistor designations; innumerable abbreviations and manufacturers' labels for equipment (such as TA-33, KW-77, HX-50, DX-40 and so on); and then you run into the fanciful regions of Marauders, Apaches, Valiants, Vikings, Topbanders, Joysticks, Mohicans, Couriers, and so on ad lib. All these you have to memorise to keep up to date, with new ones arriving every month. It is quite a feat of memory, judged by any standard.

—"The Short Wave Magazine," May, 1964

SIMPLE RECEIVER FOR 80 MX

Not having a receiver capable of tuning the 80 metre band, I decided the easiest way was to wind a pair of coils for the band and replace the aerial and oscillator coils in a small mantel set I had no use for. The whole change-over took a little more than an hour and very little adjustment was necessary.

A three-plate midget tuning condenser was added to the aerial tuning condenser to provide bandspread for easier station separation.



80 metres comes in on the top of the range and lower down quite a large number of other interesting stations can be tuned in.

The coils were wound on ¾" diam. pill containers, having holes drilled in the correct places to secure the wires and then coated with nail lacquer. All coils are wound in the same direction and ⅛" is left between the primary and secondary coils.

—Harry Major, WIA-L3102.

☆

A . . . LONG . . . WIRE

One of the I.Q.S.Y. projects is concerned with "whistlers"—the particular type of QRN observed on Very Low Frequencies. A co-operative effort in Antarctica, it is said, involves the use of a long wire—one hundred miles long. Although the connection between this and the short waves, with which we normally deal, may seem a little tenuous, it is quite possible that some energetic amateur type will be on the spot to try it out on DX! That should finally kill off the fable about using a 67-foot long wire.

—"The Short Wave Magazine," April, 1964

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WHY A BLACK BORDER ALL AROUND THIS PAGE OF "A.R."

Last month the Publication Committee reported that certain changes had to be made in the manner in which all notes for "A.R." were presented and by actually showing a full-scale layout it should assist all correspondents.

Our Printer has advised certain changes at his works, the result of which is that all correspondents must present their notes in a standard form. This means using quarto size paper, allowing a one-inch margin at the top, both sides and the bottom. Each page must be numbered and if typewritten use double spacing please. If your notes are handwritten please leave a space equal to the depth of your handwriting between each line. If this is not done it is most difficult to edit your notes, and if they cannot be edited they may have to be omitted, something neither you nor your Committee wish to have happen. You may well ask why the need for such a wide margin, particularly at the top and bottom. The reason is quite logical: if this margin is omitted then your notes cannot be properly read when they are being set for the magazine, in fact, certain items at the margin edges (if not used) are obliterated by the typesetting machine. So please use a margin on all edges of your paper.

If you desire to have a hamad or a special item inserted in "A.R." please put it on a separate piece of quarto paper so that this piece of paper can be passed on to our printer. If your special item is included in the body of a letter it does make it difficult to pass this on to the printer.

Please help your Committee by (1) using quarto size paper only for all correspondence; (2) allow one inch wide margin around all sides of the paper; (3) if typewritten use double spacing; (4) or if handwritten allow adequate space between each line.

The rest of this space is used to feature the Publications Committee Reports (by so doing you can see exactly how a perfect copy for "A.R." should look. Compare it with your notes and see how much easier this layout is to read).

All inwards correspondence received up to the last mail on 10/5/65 has been published in this issue of "A.R." Technical articles were received from VK's: 2ADE, 3TD, P. Ward and ZL2APC. Letters were from: 9M2DQ and VK5BB.

The Committee were very sorry to learn that 5BB has to resign as DX sub-editor due to ill-health. We gratefully acknowledge his past help and wish him a speedy recovery. The question of the front cover design was actively discussed and it was agreed to proceed with idea of a new layout. The report regarding the Federal Convention was discussed and matters affecting "A.R." noted.

Advertising charges were considered and it was agreed that the current charges would be increased. It was furthermore agreed to issue a special edition of "A.R." in order that potential advertisers could be acquainted with the magazine.

Future operating costs were considered and it was agreed that as finances now permitted, your Committee would commence using a better quality paper for "A.R.," all readers will welcome this change.

The next "Call Book" is scheduled for issue the first week in September, and as far as practicable this date will be held for all future editions of this publication. Further advice will appear in future issues of "A.R." The Committee were pleased to note the increased co-ordination with Federal Executive who have issued their report. In addition a full report has been received from the Youth Radio Scheme.

You may judge your space needs by realising that this page, as set, would normally occupy one page of "A.R."

• P.S.—Please never address publications matters direct to individual members of the Publications Committee as they may be away, hence your notes, etc., are then delayed even further.

THE ARC-PORT*

A Portable 80-Mx Transmitter-Receiver using the ARC-5 Receiver

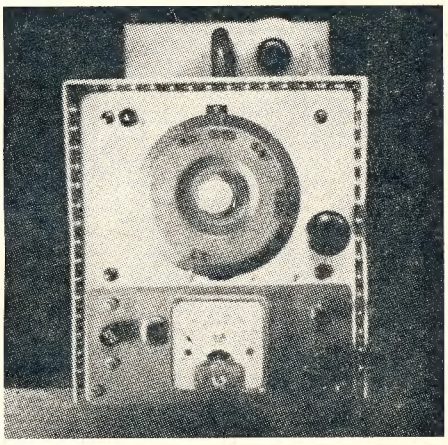
E. H. MARRINER, W6BLZ

FEELING dull, tired and wheezy after hours of yakking on that smoking sideband ring? Why not a change and so some building before you forget what the parts symbols mean. Get ready for your vacation or a field day. Here is a compact 18 watt c.w. transmitter on the back of an 80 meter ARC-5 receiver, which is a lot of fun to build. The receiver is modified a bit by replacing the old mica capacitors, bandspreading the c.w. band and putting in a crystal controlled b.f.o. These modifications give you all kinds of room under the chassis to vent your imagination on compacting a rig into one package, including the power supply.

ABOUT THE RIG

Mounting the transformer on the back apron of the ARC-5 just left room for three tube sockets. Searching around for tubes in the transmitter, this combination seemed to be the only logical choice: The pentode section of a 6U8 was used for the v.f.o. driving an Amperex 6360 final amplifier. This tube is not a baby, it will handle 100mA. plate current, fully loaded. It is a rugged tube and you don't have to worry about the plates getting red. The other socket was used for a voltage regulator.

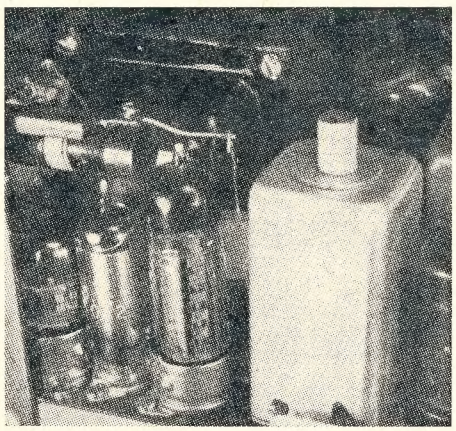
Being pushed for room, the v.f.o. coil and tuning capacitor was mounted up in the front compartment away from the heat. It just fits, and with the bottom cover plate on the chassis, enough room is left around the coil. This Hartley oscillator is solid both mechanically and in frequency stability. The stability is increased by leaving the grid circuit on 1.7 Mc. and doubling in the plate circuit to 3.5 Mc. Small coaxial RG-174/U is used to connect the coil to the v.f.o. tube.



Front view of the Arc Port an 80 metre transmitter-receiver. The knob to the lower right of the meter is the v.f.o. frequency. Above this is the volume control. The p.b. to the left of the meter is the cal. switch.

* Reprinted from "CQ," December, 1964.

● Using an 80 metre ARC-5 as a base, the author has added a small transmitter with 18 watts input. The receiver is modified and is bandspread to cover only the C.w. portion of the band. Included is a special time delay keying circuit and an antenna tuner to help match those nondescript vacation antennas.



Side view of the rear section shows the three added tubes that comprise the transmitter. The power transformer is visible in the rear. The output coil, L3, and the link winding, L4, can be seen above the tubes and the compression trimmer is just visible behind the coil.

The voltage for the transmitter and receiver is switched with a relay to reduce the drain on the transformer. Using the triode half of the 6U8 as a keyer tube, voltage is supplied to the v.f.o. tube all of the time the 6360 cathode is being keyed. When you let go of the key, the voltages automatically switch to the receive position and the release time can be set for any interval of hold-in. In other words, to send, all you have to do is press the key. There are no switches to turn; the oscillator is on while you are keying, but goes off automatically when you stop.

The final amplifier, the 6360, is tuned using a combination compression type capacitor and varying the slug on the XR-50 coil, to cover the whole 3.5 Mc. to 3.7 Mc. band. The compression type capacitor can be obtained with a shaft and knob and is the only tuning capacitor that will fit in the tight space at the back of the chassis. Everything seems to really fit snugly and in an orderly fashion on the chassis.

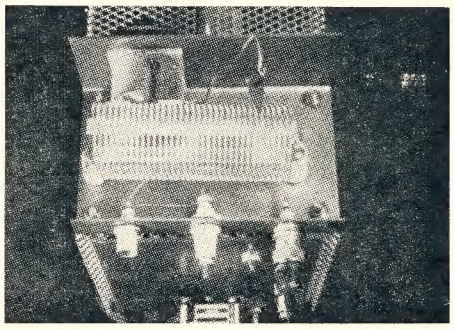
The receiver portion is essentially the same old ARC-5 except that it has been bandspread to cover the 3.5-3.7 range and a crystal b.f.o. has been added. All of the old mica capacitors were taken out and replaced with 0.02 m.f. micas. The process of removing all of these parts, especially the old b.f.o. can, leaves an amazing amount of space underneath the chassis for new parts.

RECEIVER CONSTRUCTION

Before starting, haywire a power supply together on the bench and check out the receiver to make sure that it is working. When you make changes modifying the wiring, check it from time to time to see if it still works. Without going into too much detail, the first things to change are the large mica capacitors. The wires can be traced back to their source, clipped and a 0.02 m.f. ceramic soldered in its place. The output transformer can be changed and the new one mounted on the side of the chassis and at the same time make sure to put a 0.005 ceramic capacitor from the plate of the 6V6 (or 12A6) audio output to ground to replace the one removed. This prevents transients from breaking down the transformer insulation and also prevents audio oscillation.

Now after all of this modification and the receiver still says "A OK," you can try to bandspread the receiver. Leaving three rotor plates in the tuning capacitor will spread the band from 3.5 to 4.0 Mc. If you are strictly a c.w. nut, just one plate on the rotor is all that is needed. This is not too hard to do but just don't lose the 80 metre band in the process. A signal generator will help but is not absolutely necessary; a 3.5 Kc. crystal marker is just about needed. One plate will spread the band from 3.5 Mc. to 3.7 Mc. and a slight change in capacity will shift the dial. The final check should be made with the cover over the tuning capacitor.

Here's how to go about the change. First remove the slotted plate on each of the sections. Next unsolder the brace on top holding all of the rotors together. To get the plates out here is the magic formula. Wiggle each plate back and forth 50 times with long nose pliers and then give a downward push and it will roll right out. Keep your left hand on the shaft to prevent it



Rear view of the Arc Port shows the antenna tuner mounted on top. Note the keyer circuit battery on the bottom of the rear apron.

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from moving or the ball bearings will come out and it is fun to get them back in place. Now put a 82 m.m.f. silver mica capacitor across the oscillator and mixer coils. Across the antenna coil section put a 62 m.m.f. silver mica. This one has to be a little less because it has the small variable plus any capacity of the antenna.

Somewhere along the line the b.f.o. transformer can be removed and a crystal b.f.o. wired in. See Fig. 1.

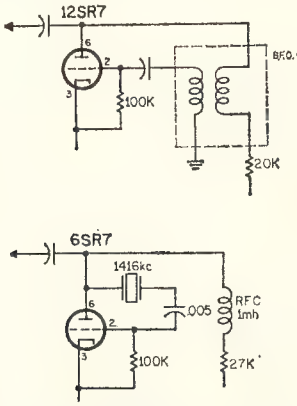


Fig. 1. Original ARC-5 b.f.o. circuit and the modified crystal controlled version. The r.f.c. is a Miller gauge 4652 and the crystal is an International FA-9 pigtail type cut to 1416 Kc.

POWER SUPPLY

After you are satisfied with the performance of the receiver based on its operation with a temporary supply, we can proceed with the rear deck work. A plate, shown in Fig. 2, can be made to cover the rear deck after the deck has been nibbled out to within $\frac{1}{8}$ in. of the chassis edge.

The supply voltage to the receiver section was reduced to 250 volts through a 3.5 k., 10 watt resistor. This is shown in Fig. 3. The screen voltage is reduced to 100 volts through a 25 k. series resistor. Since the 6K8 triode section (receiver local oscillator) was hooked up to the regulator tube for a steady voltage, the variation on the screens due to plate current drain at various gain settings was not stabilised with a bleeder arrangement.

A small loudspeaker of the type used in transistor radios was mounted over the 6SK7 tube. Its rating of 0.25 watts doesn't seem to be a problem. It is loud and sharp for c.w. with its limited frequency response. An output transformer, 5 k. to 4 ohms, is mounted below chassis as shown in the photographs.

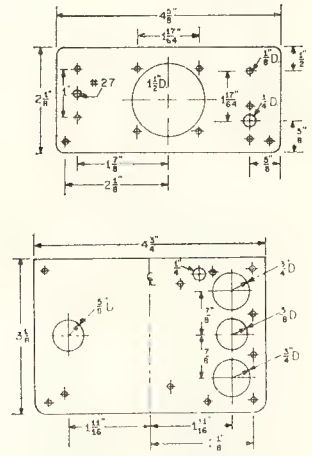


Fig. 2. Dimensions of the front and back plates for the ARC-Port.

TRANSMITTER SECTION

First wind the v.f.o. coil, tapping it six turns up from the bottom end. I scraped the wire and twisted it together and then brought the pigtail over to a terminal which was made by tapping a 4-40 screw into the base of the form. Coaxial cable (RG-174) was used to connect the coil to the tube socket. A 410-20 m.m.f. silver mica capacitor was used as a padder across the 100 m.m.f. variable tuning capacitor. With this combination the tuned circuit should hit 1.7 Mc. with the bottom cover in place. The coil can be mounted an equal distance between the chassis and the cover.

It is probably easier to wire the v.f.o. and 6360 amplifier tube before tackling the keying circuit and it leaves more room to work under the chassis. The plate circuit of the 6360 is mounted topside, and a compression type capacitor is used for plate tuning. This capacitor can be obtained with a shaft if desired, or if you have to use the screw slot type a washer can be glued on for a knob. Using the combination of the compression type capacitor and the slug adjustment, the range wil cover 3.5 Mc. to 3.7 Mc., doubling in the plate circuit.

I find the keying circuit handy although many may want to use either a small toggle switch or a relay to change the voltages from transmit to receive. Using the keyer circuit, the relay is energised in the receive position to make a more foolproof circuit. The advantage of the keying circuit is there is no switch to flip when you transmit. Just press the key and send; when you let go, the receiver comes back on after a delay determined by the setting of the 1 meg. delay control which is mounted at the back of the chassis. It is a subminiature type potentiometer. The small 15 volt battery mounts on the back of the rig in modified fuse clips for easy replacement. The drain is very light and should last the shelf life of the battery; ours has been in for months.

There is no trouble with the keying circuit once it is built. The value of the series plate resistor was set at 18K as this permitted enough current to flow to close the 10K d.c. relay. Relay coils other than 10K might need a different value series resistor. Also the keying 1N539 diode was used because of its high back resistance and low leakage to prevent the charge from draining away on the 0.2 m.f. holding capacitor. There may be other diodes that will work just as well but of the several tried, this one seemed to do the job best. A Mylar 0.2 m.f. should be used here as it has low leakage and worked out right. Other types might have more leakage. I set my delay to hold the v.f.o. on between words.

TESTING

Most of the adjustments probably were made by the constructor as he went along but here is how I did it. When the v.f.o. and 6360 were wired up and finished I temporarily put on the bottom cover and set the dial to 3.5 Mc. The slug was tuned for zero adjustment on the v.f.o. coil and then shifted to about 3550 Kc. where the

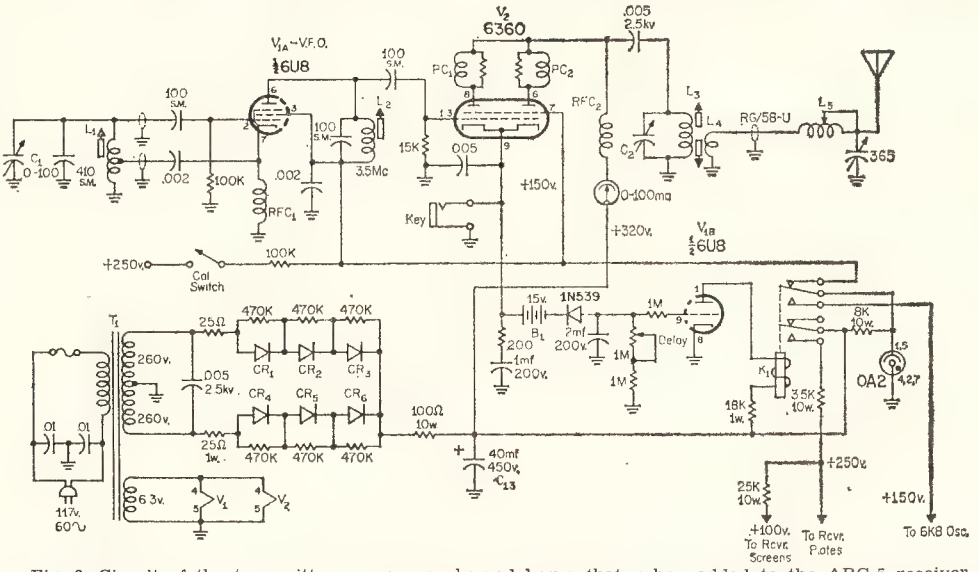


Fig. 3. Circuit of the transmitter, power supply and keyer that, when added to the ARC-5 receiver, makes up a neat 80 metre vacation portable. All resistors are ½ watt unless otherwise noted; all capacitors greater than one are silver micas in m.m.f. and less than one are disc ceramics in m.f. unless otherwise noted. The 1 m.f. and 0.2 m.f. in the keyer circuit should be low loss Mylar types.

B1—15 v. battery Burgess type Y10.
C1—100 m.m.f., A.P.C. type with ¼ in. shaft.
C2—65-340 m.m.f. El Menco L-30 compression trimmer.
CR1-CR2—0.25 amp. 400 v. p.i.v. diodes.
L1—38 turns 26 gauge e. tapped 6 turns up from ground, wound on National XR-50 form.
L2, L3—38 turns, 26 gauge e. wound on National XR-50 forms.
L4—5-turn link of hook-up wire wound on cold end of L3.
L5—3½ in. length of Airdux 1010 gauge. (1¼ in. dia. 10 t.p.i.).
PC1, PC2—5 turns 20 gauge tinned wire on a 47 ohm ¼ watt resistor.
RFC1—2.5 mhy ferrite choke, Miller 6302 gauge or equivalent.
RFC2—0.62 mby ferrite choke. Miller 4650 gauge or equivalent.
K1—D.p.d.t. relay with 10K coil.
T1—260-0-260 at 90 mA., 6.3 v. at 3 a. Stancar PC-8404 or equivalent.

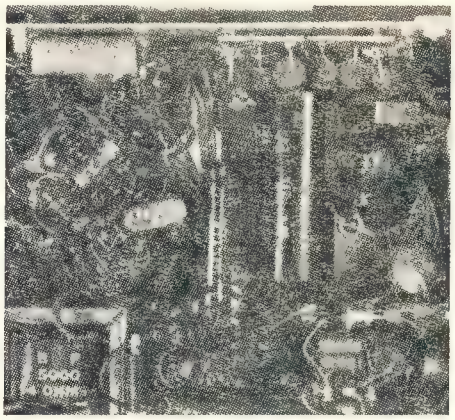
plate coil was peaked up for maximum drive and output. The final tank circuit was link coupled direct into a 50 ohm carbon resistor for this adjustment and field strength meter watched for maximum indication at this frequency.

The grid circuit of the 6360 should draw about 2 mA. which is all that could be obtained from the v.f.o. Normally the 6360 uses 3 mA. of drive to obtain 100 mA. plate current. We could get 65 mA. with 2 mA. drive. More could be obtained by experimenting with the tap on the v.f.o. coil in conjunction with varying the grid resistor in the v.f.o. and 6360. Increasing the screen to its normal 200 volts does not seem to improve anything. A little more could be squeezed out by using capacitor input filter but the difference in signal strength does not seem worth the regulation trouble.

The output of the final is coupled to an L network on top of the chassis. The idea is that any length of wire might be used when on vacation. In a motel, a 25 foot length is about all you can hang in the room while in a mountain cabin you could get quite a long run. You will have to experiment for the number of turns for your particular installation. Using 60 feet of wire strung out the window, I found the coil, tapped six turns from the coaxial input end, loaded it up to 65 mA. when the capacitor was peaked. This is 18 watts input.

This is enough power, on 80 metres to really get out. We have worked Arizona, Nevada and stations to the north of San Francisco with S9 reports on the 60 ft of wire.

The Gas regulator tube should never have more than 25 mA. flowing through it and the 8K series may have to be adjusted. As long as the VR tube was there, we decided to use it on the local oscillator of the 6K8, to help stabilise signal drift. The pin connection on the oscillator coil is number five and the 150 volts regulated can be fed here when the wire is cut and another outed to the relay.

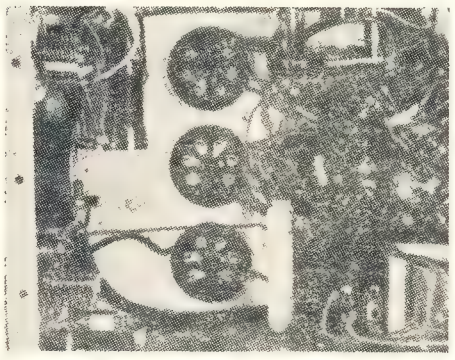


Bottom view of the front section of the modified ARC-5 with the coil bank removed shows the v.f.o. tuning capacitor in the upper left corner with its XR-50 coil form to the right of it. The relay, K1, may be seen in the upper right corner.

THE CABINET

This nice looking cabinet is just a piece of do-it-yourself from the local hardware store. It was bent and slipped over the whole chassis. What could be simpler? The bezel was added for looks, and is one inch wide, and tapered at the bottom.

The total weight, with key and antenna, checks out on my bathroom scales at 10 lb., and easily going by air. Either way, driving or flying, on a trip this little rig will give you many enjoyable QRM free QSO's on the 80 metre band!



Bottom view of the rear section of the 80 metre portable transmitter-receiver. The upper right corner is occupied by the power supply with the diodes mounted on a board against the chassis flange. The key jack is located in the upper right corner also. The bottom right hand corner contains L2, and the miniature delay pot for the keyer circuit. The new receiver output transformer is in the lower left of the chassis.

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The Historical Development of Radio Communication

PART SEVEN—THE PRESENT SITUATION AND FUTURE TRENDS

J. R. COX,* VK6NJ

CHAPTER SIX

Wireless communication advanced technically under the auspices of three main contrivances; the spark-gap transmitter, the thermionic valve and, recently, the transistor. Within the framework of this trio other developments eventuated, amongst which were improvements in valve design, circuitry design, antenna effectiveness, the propagation characteristics of wave radiation, wireless telephony and broadcasting techniques. All combined, meant the advancement of radio as a whole. Wireless circuitry progressed from detection without amplification to Tuned Radio Frequency reception, which gave amplification at the frequency at which the signals were transmitted. Another innovation was the Armstrong regenerative circuit which made loudspeaker reception possible. Superheterodyne circuits gave higher amplification and greater selectivity, with the added facility of automatic volume control.

Mention of the system called frequency modulation has been made in Chapter Three,[120] and another modification to methods of transmission was introduced in the 1930's. The technique, called single sideband transmission, is finding increased use at the present time. It was realised that a fully modulated, amplitude modulated signal carried two-thirds of its power in the carrier and only one-third in the sidebands. This represents a waste as only "The sidebands carry the intelligence to be sent; the carrier goes along for the ride."[121] As a means of using the transmitted power to greater advantage, it was decided to eliminate the carrier and transmit either one sideband or both (called suppressed carrier system). The carrier is easily reinserted by a heterodyne-type receiver for normal demodulation and it is claimed that the single sideband system can give an effective gain equivalent to increasing the transmitter power eight times. The system also has the advantages of conserving spectrum space and eliminating phase distortion.

So far this thesis has outlined the course of development through which wireless communication has passed to enable man to hear and speak at a distance. There is yet another opening of wireless communication which enables man to see at a distance. This is, of course, called Television.

Television, strangely enough, was envisaged before the advent of practical wireless communication, it being proposed as an adjunct of wire telephony. The history of television can be traced back to a Mr. Joseph May, a telegraphist in Ireland, during 1873.[122] He noticed that sunlight shining on selenium resistors varied the current flow in a circuit of which they were part. May reported this phenomenon and from subsequent investigations came the "selenium cell" which has the ability to transform light impulses into electrical impulses. Then arose a query. Could such a cell form an electrical "eye" for transmission of different shades of light? After all, Bell's microphone was an electrical "ear" which changed the voice into a varying electric current. Why not use the same principle to send pictures composed of varying shades of light?

A number of inventors accepted the challenge and amongst them was Maurice Le Blanc who, in 1880, proposed a system of mechanical scanning. He contended that mechanical scanning would break down the picture into many parts for transmission one at a time. Four years later, a German, Paul Nipkow, put the idea into practice by fabricating a perforated disc, the holes of which were arranged in the form of a spiral. When an image of the object to be transmitted was focussed on the disc, light from every part of the object fell successively on a selenium cell placed behind the revolving disc. The varying current was then to be sent to the receiving point where a device described by Michael Faraday and another spiral-punched revolving disc combined in action to return the incoming electrical impulses into the impulses of light which made up the original image. The arrangement failed because the selenium cell was not capable of producing sufficiently strong electrical currents. Amplification was possible after the arrival of the three-element valve and in 1909 Hans Knudsen used mechanical scanning to transmit photographs by wireless. For some years afterwards the Nipkow method was experimented with, but the mechanics of the device prevented progress to a really satisfactory standard of viewing. To achieve this the picture needed detail, contrast and no flicker, and it was realised that some means of electronic scanning was needed to produce this result.

As early as 1907 Mr. A. A. Campbell Swinton extolled the use of cathode ray tubes as a transmitter and receiver of television pictures, but it was not until 1923 that his idea was implemented. John L. Baird, sometimes referred to as the Marconi of television, successfully applied cathode ray tubes in that year to transmission and reception of shadows.

The first demonstration of true television occurred in 1926 when Baird transmitted the picture of an office boy named William Taynton. Television even reached across the Atlantic in February 1928 to a vessel S.S. Berengaria. Long wave transmission was used and the picture was not sharp or clear.

All-electronic scanning was made possible by the development of television cathode ray tubes in 1929 and these were the direct result of Campbell Swinton's earlier investigations. They were produced for television by an English company, Electrical and Musical Industries Ltd., and marketed under the name of "Emitron".[123] In America around the same time, Dr. V. K. Zworykin, of the Radio Corporation of America, developed a similar device with which the first **public** demonstration of an all-electronic television was made in 1929.

The use of ultra short waves[124] from about 1930 onwards paved the way for transmission of more detail in pictures, and from 1932 television emerged from the experimental stage to that of public use. Television was installed in 5,030,000 homes in the United States of America in 1950 and by 1960 this figure stood at 46,200,000.[125]

Public broadcasting has not been superseded by television. In fact it is claimed that radio has more listeners than ever before! This could be because of the increased accessibility of wireless. Transistor receivers are small, convenient and can be taken anywhere. Radio broadcasting has changed its role to suit the new-style audience of beachgoers, sportsmen, travellers and the teenage population. For the most part there is not so much emphasis on quality of programme format as before television when radio was **the** home entertainment. The light juke-box type of programme now predominates.

There seems little doubt that television and radio will continue to exist side by side. With the extension of experiments in using satellites as reflectors, inter-continental transmission of television could well become as common as short wave public broadcasts are now.

At the present time wireless communication serves four main purposes; those of television, medium wave broadcasting, long range telephony and specialised communication such as teleprinter and picturegram services. Research now going on aims at the continued use of radio in at least these four divisions. The indications are, however, that the physical form of wireless equipment will become smaller and smaller. This trend is not unique to radio, as other useful objects have undergone a similar pattern of diminishing size as they were developed. The grandfather clock to ring-sized watch is but one example of this.

The trend towards miniaturisation is especially noticeable in field and domestic radio appliances and this move to smallness really started with the advent of the 1.5 volt sub-miniature thermionic valve. Reduction in valve

* Government School, Yornup, W.A.

[120] See Appendix 4, The Process of Modulation.

[121] American Radio Relay League: "The Radio Amateur's Handbook," 1959, 36th edition, p.304.

[122] From a fifteen-page paper, "Television—A General Survey" by John L. Baird, addressed to the World Radio Convention, Sydney, April 1938, Institute of Radio Engineers (Aust.), op. cit.

[123] From a twenty-two-page paper, "The Development of High Definition Television in Great Britain" by J. D. McGee, addressed to the World Radio Convention, Sydney, April 1938, Institute of Radio Engineers (Aust.), op. cit.

[124] Radio waves with a wavelength ten metres or under.

[125] United States Bureau of the Census and from a letter ex State Library, James Street, Perth, 2nd July, 1963.

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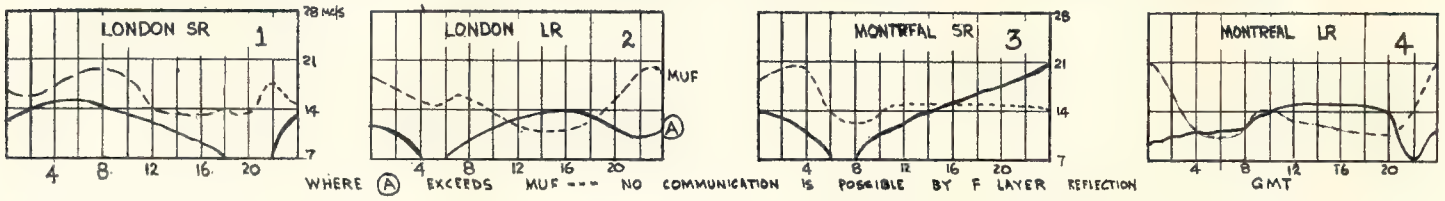

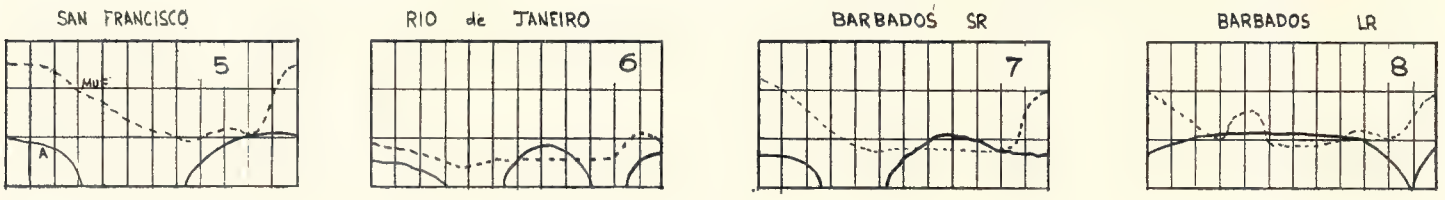

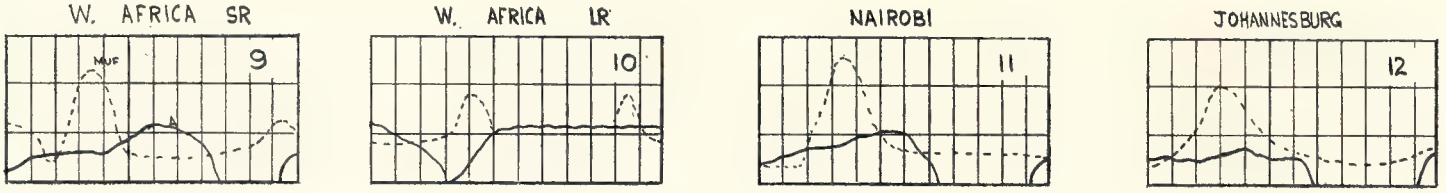

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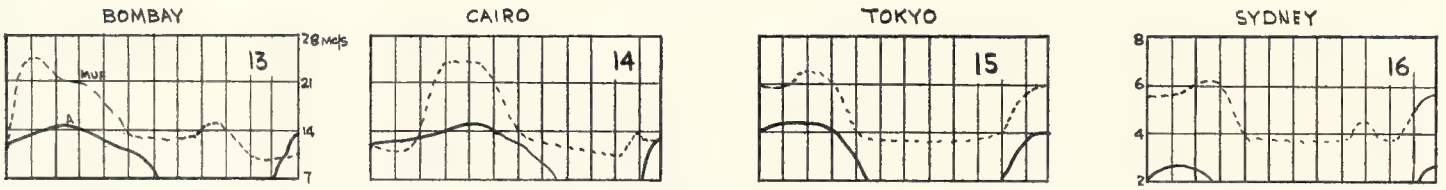

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size made overall size diminishment possible and by 1948 the reduction in equipment extent was quite noticeable.

Shockley, Bardeen and Brattain opened up the next stage of miniaturisation with their discovery of the transistor. The miracle of the transistor is that, despite its smallness, it can do better just about anything that the subminiature valve can do. Requiring only low voltages, this device has brought about a remarkable decrease in size and weight of communication equipment because these two factors are proportional to the voltage used, power handling capacity and heat dissipation. Transistor usage in communication equipment gave rise to associated techniques such as dip soldering and printed circuits, both of which facilitate simple assembly and reduction in volume. In addition, new lines of components in the form of miniature capacitators, resistors and switches made possible further reduction in size and weight when compared with subminiature valve equipment.

Thus transistors, themselves minute, together with associated components and construction techniques, have produced a remarkable shrinkage in overall size of equipment. The parts placement density of transistorised equipment is said to be capable of achieving 50,000 parts per cubic foot. By comparison, the "handie talkie" transceiver which is regarded as the ultimate in miniature valve designed equipment, achieves a parts density rating of 8,000 parts per cubic foot.[126]

A military demand for greater miniaturisation than 50,000 parts per cubic foot has launched a programme with the aim of microminiaturisation in field-type equipment. This need arises from the foreseen requirements of wireless sets to be minute in the event of nuclear blasts. The fufilment of a programme in micro-miniaturisation depends upon a new concept in radio equipment called the modular concept, which has a minimum aim of 500,000 parts per cubic foot and the possibility of a further tenfold reduction.

The modular concept in electronics centres around the evolution of micro-miniature components of uniform shape and size which combine to form tiny modules. Each module is assembled as a micro-circuit capable of complete function such as an oscillator, modulator or any other block section of a receiver or transmitter circuit. There is a variety of assemblies and any number of interconnections of modular circuits is envisaged possible.

Modular circuits are constructed in wafer-like forms 0.310 inch square and 0.010 inch thick. Shapes of components as we now know them disappear. Resistors, for instance, are made by depositing metal or a metal oxide film, and fixed capacitators use ceramics, while inductors use toroids between two micro-wafers. Variable tuning condensers are replaced by highly sensitive, low voltage, semi-conductor diodes which exhibit variable capacity. Since the programme began in 1958, it has been found that all electronic parts now used in wireless equipment can be reproduced in the modular concept. It seems very likely that the transistor set now considered small may soon be bulky by comparison with its modular counterpart.

The call for miniaturisation has brought about a change in the radio industry itself. In the past a designer could alone work to create new equipment, but now, because of the great complexity of the factors involved, the days of the sole planner are going. The modern designer has to consult with many specialists from many departments of science and industry to get the overall picture; the chemist, engineer, physicist and mathematician all have something to contribute. The transistor heralded the opening of the miniaturisation era in 1948 and this has now extended to a period of micro-miniaturisation. It is also the era of the specialist because, now, "the maximum amount of knowledge is the minimum required"[127] before new designs can be created and the minimum amount of knowledge is beyond the capacity of a single mind.

Small equipment needs a ready, reliable source of power and here specialised development in primary cells has assisted the fullest exploitation of miniaturisation possibilities. As well as a demand for size reduction in wireless batteries, there is an insistence upon a reasonably long life. Miniaturisation of the standard torch-type battery does not lend itself to this requirement, but new techniques have evolved tiny batteries which, in themselves, amount to a scientific breakthrough.

Later development of the electro-chemical cell, using zinc and mercury, devised by Dr. Samuel Ruben during the Second World War, has proved of tremendous assistance. The advantage of the mercury-type cell is that it has a capacity something like seven times as much as the Leclanche torch-type cell. This means less bulk without loss of power availability.

An announcement of a major breakthrough in the actual conveyance of intelligence from one place to another was made in May 1963.[128] This concerned the Pseudo Random Intelligent Noise Transmission System. Labelled "P.R.I.N.T.," it is a completely new concept in wireless communication although it does still use the electromagnetic spectrum and some conventional transmitting components. The system revolves around a new thought in tuning and modulation. Tuning depends upon time and not frequency as we now normally expect, whilst the modulator converts intelligence into a pulse code which is emitted by the transmitter. To receive the information the receiving set must start at the same time and remain in phase with the transmission. In this manner the pulse code is converted to our natural means of reading and hearing. Many such transmissions using different time starting points and different codes may be accommodated in the spectrum space of one conventional transmission. This system is very much in its infancy, but it does present a picture of overcoming the problem of overcrowding as more and more stations come on the air.

Another new concept called "Laser" is currently under intense research. The Laser is a new electronic device which has the ability to amplify light waves and intensify them into a single powerful beam. American scientists prophesy the use of such a beam in a communication system. This system could, in theory, use "a beam of light to carry all the radio, television and telephone broadcasts currently transmitted throughout the world."[129]

Since practical wireless began, its progress has been motivated by the need to improve on what has already been discovered. Each step forward has brought with it a new challenge. This is so today. From the turn of the century the challenge has been found in the need to perfect techniques and equipment, but it does appear that the zenith of technical perfection, with present modes of transmission, may be reached by the current programme of micro-miniaturisation. What, then, of the period beyond? Wherein lies its challenge? The answer seems to be in the problem posed by the future need to accommodate many more wireless stations and their operation without mutual interference. This problem is becoming increasingly apparent and the time could arise where there will not be sufficient band space available. The wider use of single sideband transmissions will help overcome the question, but the real solution may only be found in a new mode of conveying intelligence from one place to another. The indications are that the radical P.R.I.N.T. and Laser systems may one day prove suitable for this purpose.

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(Continued on Page 22.)

[126] Gilbert, H. D.: "Miniaturisation," Rheinhold Publishing Company, New York, 1961, p.106.

[127] Ibid.

[128] "Amateur Radio," Journal of the Wireless Institute of Australia, May 1963, Melbourne, p.1.

[129] Laser is derived from a phrase that describes the device's function: Light Amplification by Stimulated Emission of Radiation. Two-page article by Bruce Shore in "Radio, Television and Hobbies," February 1963.

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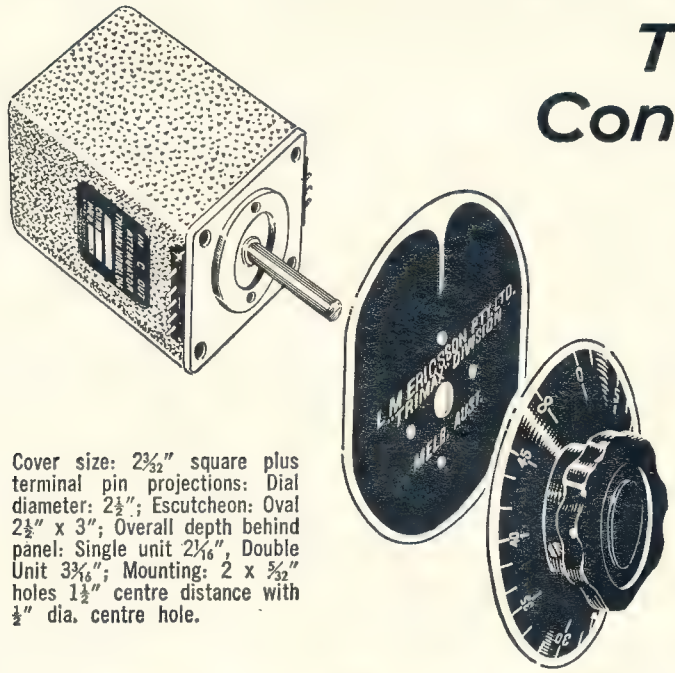

Cover size: 2 3/32" square plus terminal pin projections: Dial diameter: 2½"; Escutcheon: Oval 2½" x 3"; Overall depth behind panel: Single unit 2 1/16", Double Unit 3 3/16"; Mounting: 2 x 5/32" holes 1½" centre distance with ½" dia. centre hole.

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Porous bronze main bearing, stainless steel spindle, high quality phenolic resin stud plates with acetal resin rotor bosses, diamond lapped contact surfaces, positive knob stop in addition to individual rotor stop, high stability resistors.

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LM50

W.I.A. Federal President's Annual Report, 1964-65

It once again gives me pleasure to present to Federal Council the activities of the Institute in general and the Federal Executive in particular for the past 12 months.

This year has been a quiet one for the W.I.A. in which it has had a chance to stabilise itself and take stock of its current and future prospects. In other respects it has been an upsetting year. On the 29th August, 1964, the Institute lost one of its most loyal stalwarts—I refer to the late Jim Corbin, M.B.E., VK2YC, who died after a short illness. Jim was responsible in no small way for strengthening the N.S.W. Division, and although a "stormy petrel" he always had the Institute's interest at heart in everything he did. It was his great drive and enthusiasm that enabled N.S.W. to install and maintain the property at Dural and obtain a permanent home at Aitchison Street, Crow's Nest. He will be missed by all, especially Convention members, but particularly his own Division. The Executive also lost the services of the Secretary through ill-health for some three months during the year. This could not have occurred at a worse time in that the last Convention minutes had to be prepared and the Secretary's job had to be shared between the Vice-president and myself.

On a brighter note, the Executive were asked to once again co-operate with the Boy Scout movement in providing a station at the 7th Australian Jamboree, which was held at Rowville, near Dandenong in Victoria. Due to a sudden illness of Mr. Glover who was to organise the various facilities, Mr. David Rankin and myself at short notice made the necessary arrangements. The station, VK3WIA, the Federal station of the Institute, was eventually set up in a portable army hut on the site and the equipment installed. The station was in operation for the whole period of the Jamboree and I believe it was an outstanding success. I personally wish to record my thanks for the great assistance to David and myself of those providers of equipment, both commercial firms and Amateurs, and also to all the operators, erection teams and others too numerous to mention by name, who gave of their time and energies over the Christmas/New Year period. Cards are now being prepared to acknowledge QSO's with those local, interstate and overseas stations who contacted VK3WIA during the period. I am sure that the effort was well worth the trouble as judged by the continuing interest of Scouts and their parents who visited the station. Personal letters of thanks have been sent to all those firms and Amateurs who assisted.

Whilst speaking of VK3WIA I wish to report that further smaller items of equipment have been added during the year to the basic Geloso transmitter. The old transmitters bought at disposals from the Air Force have now been sold, and one of the receivers also. I believe it is essential that the Federal station should have modern sideband equipment if the W.I.A. is to maintain liaison with overseas stations. I hope that VK3WIA will be on the air more regularly during the next 12 months.

In dealing with I.T.U. matters I wish to say that the official Government report on the results of the recent space services conference in Geneva has not yet been released, although basically the details stated in my last report to you are valid. No I.T.U. conference of interest to the Amateur has been held during the last year nor, at present, is the date of any forthcoming conference known. However, I trust all those Divisions who have not yet filled their quota of subscriptions, set in Sydney in 1963, should continue to encourage further subscriptions. Only VK7 and VK6 have filled or nearly fulfilled their promises.

The activities of W.I.C.E.N., the Institute Emergency organisation, received a severe test during February and March, when bush fires ravaged large areas of eastern Victoria, New South Wales and to lesser extent South Australia. At the time of preparing this report little news is available from New South Wales or South Australia, but regarding Victoria, the network operated most effectively with many mobile stations taking part and performing a most useful service to the community. VK3WI was on the air for most of the period, as was the control station at Lucknow. I understand the authorities were most lavish in their praise for W.I.C.E.N. and very good T.V. and newspaper publicity was obtained for the Institute. I trust other Divisions will take note and ensure they also have effective nets which can go in operation at short notice. Those who took part are to be congratulated on a sterling effort which has undoubtedly enhanced the Amateur image with the general public.

Membership figures for the W.I.A. show gradual increases as licensee figures continue to rise. I would like to be assured that Divisions are doing everything possible to bolster their membership particularly with the new licensees. A sound, progressive programme of recruitment is the only way to achieve greater status in the eyes of the authorities. Again, I must repeat that our ultimate aim should be to represent **every** Amateur in Australia. The membership figures (which include all grades of membership) and licensees are shown below for the last three years:—

	1963		1964		1965	
	M	L	M	L	M	L
N.S.W.	1,263	1,427	1,172	1,485	*1,228	1,564
Victoria	766	1,392	728	1,421	858	1,487
Queensland	395	469	423	501	511	540
S. Australia ..	541	545	547	585	514	623
W.A.	216	317	216	324	*246	339
Tasmania	174	164	184	154	208	170
VK1, 9, 0	—	130	—	132	—	146
Total	3,355	4,314	3,270	4,602	3,565	4,869

*Estimated.

I must once more express disappointment at the failure of some Divisions to forward their monthly membership returns. I ask all Federal Councillors to impress on their Divisional secretaries the importance of regularly forwarding these figures. The Federal Treasurer must have correct figures on which to apportion financial payments and they are also required from time to time for official purposes.

The Youth Radio Club Scheme still continues to grow and new clubs have been formed during the year. The separate report from the Federal Y.R.C. orgainser, Mr. Rex Black, VK2YA, gives a detailed account of the activities. I take this opportunity to thank all those who are helping with the clubs and Mr. Ken Mattei, who regularly presents the activities with his notes in "A.R." I urge Divisions where the scheme is at present not functioning or only just starting to give this aspect of Institute activities every assistance possible, for the recruitments in this field will eventually make itself felt in added membership apart from the better public relations it creates.

We have continued to liaise with overseas societies, principally the A.R.R.L., R.S.G.B. and N.Z.A.R.T., in regard in regulations, publications and contests. The A.R.L., through I.A.R.U. channels, is proposing to run a series of articles on each member society in regard to their regulations, operating procedures and various society matters. Mr. John Huntoon, the general secretary of A.R.R.L. and secretary of the I.A.R.U., has assured me that one of the first societies to be written up in QST will be the W.I.A. He has also informed me that it is most likely he will be visiting Australia in the near future. I hope that during the next 12 months we may be able to enjoy even closer liaison with these and other societies per medium of regular radio contacts. The sub-committee formed to enquire into the F.C.C. organisation, comprising the Victorian Federal Councillor, the Vice-president and myself, has also received valuable information and assistance from the A.R.R.L. A final report will be issued when all the facts have been sorted and examined.

The Executive has communicated with the P.M.G.'s Department in relation to regulatory matters raised at the last Convention, and all Divisions have been notified of the results. Some of the replies have not been in our favour, and I consider these matters could be reopened during the next 12 months. Mr. Len Pearson, contrary to my last report, has not yet retired and his time has been extended untill the latter part of this year. His likely successor is not known at this stage. On the few occasions of liaison with the local Victorian Administration, their co-operation has been most helpful and cordial.

The Publication Committee has continued its onerous task of preparing "Amateur Radio" each month for printing, and I still consider Divisions could give more assistance with articles and in seeking advertising. The delay in printing the Callbook this year cannot be laid at the door of the Publications Committee for it was due to lateness of checking by the various State controllers. The Ceneral Administration personally apologised to me for the delay and I believe it will not occur again. Incidentally, our contract with the Department has been renewed for another five years for the publication of the Callbook. The detailed report by the Editor of "Amateur Radio" wil give you a better idea of the problems involved. I wish to thank the Editor and his able assistants for the way in which they continue to give a lot of time and energy but receive very little outside help.

The usual Institute contests were held during the year and were conducted by the Contest Committee located in Queensland. Unfortunately for most of the year, only one member could devote time to this sphere resulting in lateness in publishing results, particularly the R.D. Contest which I understand will be in the May issue. Congratulations to South Australia who once again has won this contest. All of the Federal Contests were well patronised and interest maintained. The Ross Hull trophy has been repaired and refurbished and it is proposed to also refurbish the R.D. trophy if necessary. The issue of awards has continued under the direction of the awards officer, Mr. Alf Kissick. The production of the new N.F.D. certificate has been delayed due to the lack of a suitable design and motif. A draft is expected in the near future. I have signed over a thousand membership certificates this year and all Divisions should now have had their first issues—more will follow as time permits. A draft of each of the S.W.L. certificates has been produced and these, together with the rules, will be printed during the next year.

Activities on the various Amateur bands has been spasmodic depending on contests and conditions for the largest amount of local activity. Conditions have been against continuous activity but it is becoming more and more evident that Amateur A.M. is on the way out. There are always some s.s.b. stations operating when the bands are otherwise deserted. The voluntary sub-division of the h.f. bands has now been promulgated and I trust Divisional broadcasts will regularly publicise these frequencies. On the v.h.f. and higher frequency bands activity is as great as ever and distance records continue to be broken. VK2ZMR has taken the 144 Mc. record with a distance of 1,410 miles to New Zealand. VK3AEE and VK7LZ have been active on the 432 Mc. and their record stands at 282 miles. Congratulations to these and many others who continue to pioneer these frequencies.

The work of the co-opted officers has continued with little worry or fuss, and Messrs. Kissick (Awards), Jones (QSL), Straughair (Certificates and Contests), Glover (Historical), Black (Y.R.C.) carry on their important jobs in the usual efficient way. I thank them all for their continued devotion to their jobs.

Regarding the financial state of Federal Council, I refer to the audited statement pre-

(Continued on Page 22.)

WIRELESS INSTITUTE OF AUSTRALIA — FEDERAL EXECUTIVE

Balance Sheet as at 28th February, 1965

Liabilities—			**Current Assets—**		
Trust Fund	£321		Commonwealth Savings Bank	£2,421	
I.T.U. Fund	1,164		Trade Debtors	92	
		£1,485	Stock on Hand—at lower of cost or market value	173	
					£2,686
Accumulated Funds—			**Fixed Assets—**		
Balance 1st March, 1964	£1,089		(At cost less depreciation)		
Add—			Furniture and Fittings	12	
Surplus of Income over Expenditure for Year	443		Typewriter (No. 1)	72	
Surplus on Revaluation of Equipment	21		Typewriter (No. 2)	10	
		1,553	Duplicator	95	
			Trophies	14	
			(At valuation)		
			Equipment	149	
					352
		£3,038			£3,038

ATTENTION V.H.F. OPERATORS

We have obtained the franchise for the GONSET CO., makers of the most advanced

6 and 2 METRE S.S.B.-A.M.-C.W. TRANSCEIVERS

See the write-up on page 64 of the March, 1965, issue of "QST" on the **2-metre GONSET SIDE-WINDER**, a compact solid-state 20 W. P.E.P. 2-metre Transceiver for 144-146 Mcs.

We have these Transceivers on order already and their estimated retail price, tax inclusive, will be £270 ($400 in the U.S.A.). Power supplies, A.C. or D.C., are extras.

Also on order a GONSET 2-metre Linear Amplifier using a 4X150A valve, with self-contained power supply, estimated at £250.

On special order the same equipment is available for 6 metres operation.

Orders for this most advanced equipment, offering the same operating convenience as now already standard on the d.c. bands, at comparable prices, can be made for expected delivery in July, 1965.

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33 PLATEAU RD., SPRINGWOOD, N.S.W. (P.O. BOX 23) Phone Springwood 394

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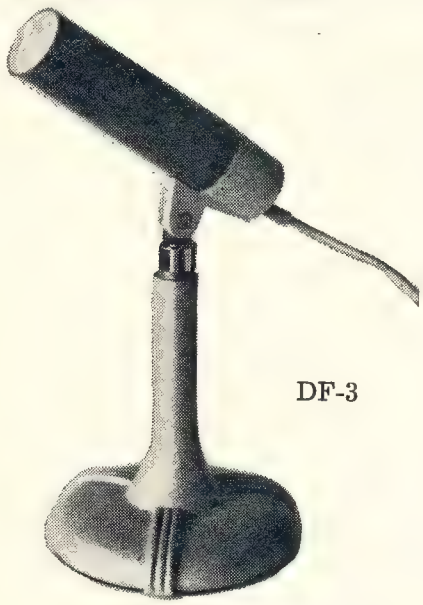

DF-3

SPECIFICATIONS:

Output Impedance .... 50 ohms or 50K ohms
Effective output level .... —55 db. [0 db. = (one) 1V. Microbar]
Frequency response .... 50 to 15,000 c.p.s.

OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm.
Size: 4½" long, 1¼" diameter.
Cable: 12 ft. of P.V.C.
Swivel fits 5/8" 26 t.p.i. Stands.
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Book Review

SHOP AND SHACK SHORT CUTS
By Donald L. Stoner, W6TNS

You could also call this publication the "Encyclopaedia of Hints and Kinks."

When this volume first came into my hands I began to wonder who would consider spending 50/- on such a book? As the pages were turned many old tricks were again revealed. Some of them with a new twist added to make them topical. Again I asked myself the question: Who would buy?

Yes, even after 30 years' experience in Amateur Radio and Electronics, in general I would say that this publication is a "gold mine" . . . It could save its purchase price the first time it is used and it will never go out of fashion, as so many books do.

The book is divided into 13 chapters, grouping tips under the following broad headings:

(1) Improve your Shop Technique; (2) Tips on Crystals and Holders; (3) Coil and Condenser Hints; (4) Ideas for the Shack; (5) Improve your phone rig; (6) Hints for improved c.w. operation; (7) Receiver improvements; (8) Transmitter improvements; (9) Antenna improvements; (10) Power supply ideas; (11) V.H.F. hints; (12) For the mobileer; (13) Test equipment.

There is something for everyone interested in construction projects. S.W.L.'s . . . The younger generation of new Amateurs and the "old hand." There is something for all, grouped neatly into one volume.

Publisher: Cowan Publishing Corp., Port Washington, N.Y., U.S.A. Australian Retail Price 48/9, plus postage 1/9. Available from Technical Book & Magazine Co. Pty. Ltd., 295-299 Swanston Street, Melbourne, C.1, and McGill's Agency, 183-185 Elizabeth Street, Melbourne, C.1.

☆

WORLD RADIO T.V. HANDBOOK, 1965. 19th Edition.

This latest edition of the "Who's Who" of the radio and T.V. world has been completely revised and brought up to date in every respect—not only as an extremely comprehensive guide to the radio and T.V. stations in the world, but also in regard to the editorial content.

To anyone even remotely interested in short-wave listening, this book should be a must. Not only does it provide full information about the broadcasting and T.V. stations in each country of the world, including frequencies, power, QSL addresses and other relevant data, but a table at the back of the publication lists in order of frequency short wave stations in the world between 2160 Kc. and 26,080 Kc.

For the serious S.W.L. the book would be worth obtaining for this information alone.

Some of the best-known international personalities within radio and T.V. have provided interesting articles on such subjects as Interference, Jamming and You, Solar Activity in 1965, Inter-continental Television, Short Wave Reception Conditions expected during 1965. "Where to Listen for Satellite Signals," lists all satellites and their frequencies and also those expected to be launched during 1965.

Tables of interest include: The Most Suitable Metre Bands for 1965, Standard Frequency and Time Signal Stations, DX Programmes, Radio Stations Broadcasting in Your Language, World Time in All Countries, and Call Sign Allocations.

The book is a soft cover publication 6½ in. by 8½ in., containing 302 pages, and is available from most leading booksellers.

OSCAR III

After delays amounting to nearly 12 months, Oscar III was finally launched on 9th March, 1965, into a near polar orbit at a height of nearly 600 miles, just as hoped for.

Unfortunately, it was soon obvious that it was not working as well as expected, in that the c.w. beacon did not function; the telemetry beacon, although at fair strength, did not give data on the two temperatures, but only one (which one?); and the overall translator gain was down by about 20db. This meant that whereas a 30 watt transmitter and average type of aerial should have been sufficient to relay signals through the translator, in actual fact the only QSO's made over transcontinental distances were by stations running near a kilowatt into high gain aerials tracked in elevation as well as azimuth.

It is suspected that the poor performance may have been because of damage to the satellite aerials which may have occurred during the launch or injection into orbit. In the VK-ZL area the only signals relayed over any distance were on c.w. and heard only for seconds. They included VK3ATN, VK7PF, VK7DK, VK7LZ, ZL3AR (running 500 watts under special permit), and a ZL1 (believed to be ZL1DE), who was heard briefly by VK1VP. There may have been others; we apologise for any omissions.

Overseas DX included W1 to HB9, DL3 to W6 also W6 to KH6, KL7 and LU3. Many of these QSO's were on s.s.b. and powers of over 500 watts were the rule.

At the time of writing (12th April, 1965) the telemetry is still in operation, having switched over to solar cells, when the main battery failed on 27th or 28th March. Although the telemetered voltage fluctuates between 11 and 13 compared with the original 20 volts soon after launch, it is quite possible that the beacon will continue to function indefinitely. If so, it is to be hoped that its orbits do not clash with Oscar IV and cause QRM.

Oscar IV, identical to Oscar III, but (we hope) fully serviceable, may be launched in September. Here's hoping we make those 4,000-mile 2-metre contacts yet.

—Bill Rice, VK3ABP.

YOUTH RADIO CLUBS

The big news this months comes from Sydney Teachers' College where a newly formed club (with leaders Mr. M. Henderson and Mr. Dick Smith) has 25 members. This is one of the most important breakthroughs we could have, and all Division Councils with any more than token interest in the Y.R.S. should make it a priority matter to achieve the same result. I'll be surprised if this doesn't mean 25 new Y.R.C.'s in 1966 in VK2. The president of the S.T.C. Club is Maurice Coleman, graduate B.Sc. and a Dip.Ed. student, who hopes to have his A.O.C.P. early next year. Also, judging by the number of lady members, it looks as though some girls' high schools in N.S.W. will compete with St. Anne's and Melbourne Girls' Grammar. This likely expansion is great news. Would Publicity Officer Pansy please not copy—it may give your uncountable meetings the cold horrors!

Another important matter is the education of our political leaders in the possibilities of the Y.R.C. Any day now there will be screaming in high places about the scarcity of capable technicians to look after the flying electronic laboratories now being purchased as our bomber-fighters. If you care to educate an M.H.R. or two, Mrs. Betty Gerdes, secretary of the VK2 Division, has duplicated copies of the R.T.V.H. article detailing features of the amazing Soviet Youth Training Scheme. If you send her a stamped addressed envelope marked "U.S.S.R. Info.," you will at least have material to be sent to a M.H.R. with a covering letter explaining that the W.I.A. organises a valuable voluntary scheme but the W.I.A. cannot match the U.S.S.R. by itself. All States should join in.

The two regular stalwarts, Jim Webster and Ken Matchett, keep their bulletins going from VK2 and VK3. This is an important activity because it makes all the club leaders feel that they are part of a brotherhood instead of isolated units. Ken has included his 1964 Annual Report. In VK3 in 1964, 53 Elementary and seven Junior Certificates were awarded, including the first at a Primary School, Gowrie Park. Two new clubs are welcomed—Australian Air League Squadron and Melbourne High.

In VK2 there are more clubs registered than in 1964 at this date. Full count is not available yet. Much club news is available though. At Gosford Gary Tippett has received call-sign 2UX and is designing and constructing with the aid of Lindsay 2ON. At Arthur Phillip High Mr. Pearson (Manual Arts Master) has introduced a Y.R.S. course for 2nd year pupils as a craft (all high schools please note and suggest similar). North Strathfield Scouts are still active with call-sign 2BHA, helped by Len 2AFS. Epping Boys' High is being organised by teacher Jack 2BS. Hunters' Hill High has a club led by Science Master Mr. L. MacKenzie. Westlakes goes on to greater strength under Keith 2AKX. Kiama High under Roger 2AIV has 18 members and meets every week. Birrong Boys' High with Jim Webster is helping the Cadet Unit with some transceivers and designing antennae. Punchbowl Boys' High is still organised by Secretary Warren Donald. Kingsgrove North High has a predominantly junior group that keeps Rex 2YA late home. Inverell High is still organised despite the transfer of Roger 2AIV. Kyogle Scouts with Graeme 2GJ are working on a transmitter. Peak Hill Central is a new club led by a Science Teacher, Mr. A. Tooke. Port Street Hiigh is again led by Mr. Weir. Waverley College has formed a club led by Brother P. Anderson. Dorrigo High is a new club, too, led by Science Master Mr. R. Brown.

In Canberra, the Y.R.C. types had a lot of fun at the Canberra Radio Society's Easter Convention. Roger 1RD was first to locate the Hidden 7 Mc. Tx. against inter-State competition and Jim 1JR won second prize in a Receiving Contest. Andrew Davis turns 16 next month and may be on the air (VK1AD) with his 7 Mc. transceiver (home-brew) when you read this.

There is news also from both VK6 and VK4 of L.A.O.C.P. passes. In Wesley College Club, Perth, Laurie 6ZEA has four members who obtained Commonweatlh Scholarships. They are Peter Pemberton 6ZEP, Ray Godley 6ZEG, Terry Broom and Mervin Wellnagel, the last two of whom have passed L.A.O.C.P. and are waiting for call-signs. In VK4 a De La Salle Club member and one from Grammar School (aged 15½) have L.A.O.C.P., but no details of names are available. New clubs projected are Maryborough State, Rockhampton Christian Brothers, Gladstone State, Cairns Boy Scouts and St. Patrick's (Mackay). 1KM.

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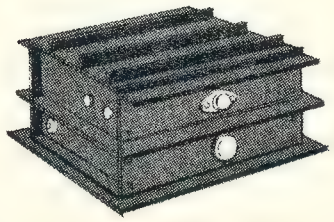
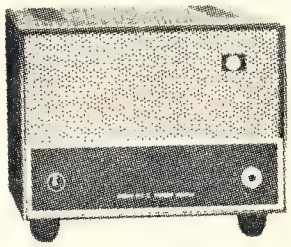
Designed and manufactured in Australia. Lightweight, highest efficiency, simple external connections for positive earth cars. No alteration to power supply required. Built-in self protection for transistors, if any transistor fails, remaining transistors cannot be damaged. Very small and compact.



WFS500. Power rating 500 watts; peak.

WFS500 12v. d.c., full 500 w. with reserve. 850v. 500 mA. 275v. 250 mA. 120v. Bias. Size 6" x 4" x 5". Price **£56,** plus 12½% sales tax.

WFS300 12v. d.c., full 300 w. with reserve. 850v. 300 mA. 275v. 300 mA. 275v. at 200 mA. 120v. Bias. Size 4" x 4" x 5". Price **£46**, plus 12½% sales tax.



WFS 240 a.c./6972 S/S.

WFS240AC 240 a.c. 500 w., same voltages and current rating as WFS500, plus 12v. a.c. for heaters, and 12v. d.c. for relays. Steel cabinet and full transformer isolation.

Also available with built-in speaker. Size 11" x 8" x 7". Price **£65,** plus 12½% sales tax.

All power supplies carry full 90 days' warranty on all components.

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225-227 VICTORIA ROAD, RYDALMERE, N.S.W. Phone 638-1355 and 638-1715; also at ATLANTIC RADIO AND ELECTRICAL SERVICES, 38 OXFORD STREET, WOOLLAHRA, N.S.W. Phone 31-7811.

Our thanks to all Amateurs and SWL's who ordered or enquired about the National equipment advertised in May "A.R." Some lines still available from stock, others on indent for the present.

SIDEBAND TRANSCEIVERS

NCX3: 3 band 200W. PEP. Full coverage of 80-40-20. LSB on 80 and 40. USB on 20. **£297.**

NCX5: 5 band 200W. PEP. Full coverage 80-15 and 28.5-29 Mc. with provision for 3 extra 10 m xtals. Selectable sideband. Receiver incremental tuning, etc. **£539/10/-.**

NCXA: Power supply 115/230v. a.c. input for NCX-3/5. **£92/17/6.**

RECEIVERS

NC121, £122/10/-. NC190X, £214/5/-, for SWL or Amateur. **HRO 500** for the discerning Amateur or professional, **£1,212/10/-. TERMS IF DESIRED.**

Also Webster "Bandspanner" and "Topsider" mobile antennas and mounts. Enquire Dept. SI.5.

KEW K109 SWR Meter .... £9 4 6 KEW K101 Field Strength Meter £6 1 6
KEW K102 Field Strength Meter £7 19 6

ALL PRICES INCLUDE SALES TAX. Enquire Dept. RE6 or your Astronic Wholesaler.

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VHF

52 – 144 – 420 – 576 – 1296 Mc.

Sub-Editor: LEN POYNTER, VK3ZGP,
14 Esther Court, Fawkner, N.15, Victoria
ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB-EDITOR

Elsewhere on this page appear the latest details of v.h.f. records actually claimed up to April, 1965. There are a number of State sections without claimants. Surely someone holds a record for the particular band. How about dropping a line to David Rankin 3QV and making a claim for your State.

The activity reports appear to reflect the time of year—autumn going to winter and the usual hibernation taking place. The Amateur bands are taking a thrashing from the "one-eyed monster." More channels coming into operation mean more viewers and of course more T.V.I., etc.

It was a pleasant surprise to have 6-metre DX over Easter, much to the surprise of many VK4's. That base station had a mighty signal in Melbourne. Have been making regular checks as time permits of the audibility of inter-State Channel 0's here in Melbourne. Much to my surprise out of 40 checks made over a period of four weeks have heard signals from the other stations. I'm not sure whether Wagga is on the air but on May 2, around 1130, a religious service was copied with great ease until the critical time to hear the location of such service when the signal dived and we missed out. The signal is never below the noise usually running S2-3 peaking at times well over the S9 mark. Refer to VK2 notes for news of their little problems.

Would be interested in reports of Channel 0 reception and from where in the divisional reports. Cannot wait until good sporadic E conditions to see what happens. VK3ZGP.

NEW SOUTH WALES

- Six-metre fox hunts have all the makings of becoming popular in Sydney. No doubt they are providing something different from the now very routine 2-metre event. Beams are a problem and everything from loops to full-sized two elements are being used. These beams mounted on a roof rack are not so bad but a two-element on the side of the car of one hound caused amusement. At one stage the only place he could swing it to take a bearing was in the middle of a bus depot.
- The Group is expected to again run its own section to the Remembrance Day contest to allow v.h.f. operators to take part if there is no inclusion of such a section in the next rules. Last year this was most successful for a long time. It would be a good thing if groups in other States were to do likewise.
- There are four v.h.f. activities each month in VK2. On the first Friday the meeting is held at Wireless Institute Centre, 14 Atchison Street, Crow's Nest. The 6-metre fox hunt is held on the second Wednesday of the month and the 2-metre usually on the fourth Wednesday. Usually on the second Sunday or week-end an event or contest is held.
- During April Sydney's fourth T.V. station took the air. Channel 10 was new, so the ads. went. To the v.h.f. operator all it was doing was more T.V.I. Harmonics of 6 metres, beats with Channel 2 and 2 metres and other mixing produced herring-bone T.V.I. and spots in converters. Most cases were not too bad and were soon cleared up. 2ZTM.

Some of the v.h.f. fixtures and events in Sydney for the next few months will include meetings at Wireless Institute Centre, Crow's Nest, on June 4, July 2 and August 6. Intended lectures are June, Transmissions Lines; July, the combined Channel 10 and Channel 7 antenna system; August, Mobile Forum 65, a panel discussion on portable and mobile operation as against home station operation.

The Mobile events will include 6-metre fox hunts on 9th June, 7th July and 11th August. The 2-metre fox hunts will be on 23rd June, 28th July and 25th August. The week-end events will be on 13th June, a four-hour message handling contest between 7 p.m. and 11 p.m. on Sunday evening. In July most likely a mobile event on the 11th. The August event will again we the v.h.f. groups' section to the R.D. Contest.

To keep v.h.f. operators informed a News Letter is produced and the weekly broadcast is at 7.30 on Sunday evening.

Fixed frequency net operation is slight at the moment. The 146 Mc. has lost some of its former support. Some of the 6-metre operators have three channels towards the high end of the band. de Tim 2ZTM.

VICTORIA

Band News. Six metres opened to VK4 and North VK2 over Easter week-end, 2 metres has had some openings to Western VK3, Eastern VK5 and Southern VK2. Activity on the whole has been rather spasmodic on all bands, the only news from 432 being that Cyril VK3AEE now has a 124-element antenna on 432 and can be heard some nights operating C.w. on this band.

There are some 60-70 stations on the 6-metre a.m. net frequency 53,032 Mc. in Melbourne, also some stations in Albury, N.S.W., Mt. Gambier, S.A. and Ipswich, Qld. The 6-metre f.m. net on the international 6-metre f.m. net frequency of 52.525 has about 10 stations and more are appearing as fast as they can procure equipment. Crystals for these nets are available from the VK3 Crystal Bureau, c/o Leo Fowler, VK3ZGF.

Two States have been linked by the engagement of Mary, daughter of Bob VK4NG to Jim VK3ZHF.

The 2-metre scrambles and fox hunts are still very popular in Melbourne, the scrambles on the second Sunday night of each month at 2045 hrs. attracting some 20-30 stations, the fox hunts on the fourth Wednesday seeing the attendance of six to eight car-loads of people. The fox hunts start around 2000 hrs. and finish between 2300 and 2400 hrs. after six to eight hunts have been completed. See you again next month, chaps. VK3ZCK.

QUEENSLAND

During April three newsworthy events took place. They were a successful mobile night, some unexpected DX and the Annual Easter Scout Venture. Early in the month a mobile night was held in the city. Those present were 4ZLL, 4ZAX, 4ZEK, 4ZDJ, 4UL, 4ZFF and myself. After the evening 4ZFF earned himself the title "Fred Flintstone"! John 4ZDJ was voted the best fox for the evening. I think that perhaps every car passed within 50 feet of his location without finding him. The evening concluded with a visit to a "Ham-wise" well-known coffee lounge.

On Sunday, 18th April, the 6-metre band was open to VK3 for a short while around 1400 hrs. VK3ZMS was the only consistent signal heard. On Monday, 19th, the band was open from 0800 to 1200 hrs. VK's 2, 3 and 5 stations were heard. Roy VK4ZRM worked 15 stations. Roy was just about the only VK4 station apart from Lance 4ZAZ, who was able to work the DX stations. Unfortunately there were at least 15 VK4 v.h.f. stations on the band at this time handling traffic of an emergency nature at the 1965 Scout Venture. Consequently although many DX stations were heard, none were worked. If you called VK4QH but received no reply this is the reason. VK4QH was the headquarters station operating portable from the Beenleigh Show Grounds running about 60 w. to a 6-element vertically polarised beam. (David, take a bow!).

The Scout Venture this year was a notable success. Most scouters agreed that the course was the hardest for some years. Many patrols turned up in unexpected places didn't they? Thanks to Bruce 4BZ, who remembered that good things come in glass!

During the past few nights Neil 4ZNL and Stew. 4ZSP have been heard battling away during Channel 0 hours. Trevor 4ZTT and Walter 4ZPW are expected to get together to put a good signal on the air in the near future from St. Lucia way. Most activity on 6 metres lately has been from mobiles on the way to work in the morning. Everyone knows that if George 4ZLG is not on the bands, then he has run for the train and therefore it must be after 8 a.m.

Two well-known v.h.f. boys have taken the step and now have XYL's. They are Graham 4ZGN and Roy 4ZRM. George 4ZLG was the recording engineer at both weddings. Who was heard calling CQ during Roy's wedding?

Ken VK3OI has come to join us here in VK4 and is at the moment in charge of the local 100 kw. 6-metre transmitter for some nights of the week. He says he cannot hear a signal on 2 metres up here. Why?

VK4 144 Mc. Beacon. The latest report from the Darling Downs indicates that the beacon transmitter is completely operational. The rig is at the QTH of John 4ZWB, who is giving it a real work-out.

An official call-sign is now awaited and once it has been obtained the automatic keyer will be constructed.

Following the request made by the group concerned for a number of odd type number tubes to be used as spares for the TX, a number of donors came forward. Many thanks to 4DA, 4TN, 4AW and 2ASA for contributing to the spares of the unit.

VHF/UHF STATE RECORDS

April, 1965

NEW SOUTH WALES:						
50 Mcs.	VK2ADE	to	VE7AQQ	8/4/59	7,320	miles
144 ,,	VK2ZMR	to	ZL2AAH	8/1/65	1,410	,,
432 ,,	No claim					
576 ,,	No claim					
1,215 ,,	VK2ZAC	to	VK2ZCF/2	4/3/63	46.8	,,
VICTORIA:						
50 Mcs.	VK3ALZ	to	XE1FU	1/5/59	8,418	,,
144 ,,	VK3ZEA	to	VK4HD	27/12/61	954	,,
432 ,,	VK3AEE	to	VK7LZ	15/1/65	282	,,
576 ,,	VK3AKE	to	VK3ANW	11/12/49	80.7	,,
2,300 ,,	VK3XA	to	VK3ANW	18/2/50	9.0	,,
3,300 ,,	VK3ZGT/ZGK/3	to	VK3ZDQ/3	14/12/63	63.5	,,
QUEENSLAND:						
50 Mcs.	VK4ZAZ	to	K6ERG	16/3/58	5,305	,,
144 ,,	VK4ZAX	to	VK7ZAO	27/12/61	1,107	,,
	No other claims.					
SOUTH AUSTRALIA:						
50 Mcs.	VK5KL	to	W7ACS/KH6	26/8/47	5,361	,,
144 ,,	VK5ZHJ	to	VK6ZCN	8/1/65	1,330	,,
432 ,,	VK5AW	to	VK3AEE	13/11/64	226.5	,,
576 ,,	No claims					
1,215 ,,	VK5LA/5	to	VK5ZCR/5	4/1/62	1.0	,,
WESTERN AUSTRALIA:						
50 Mcs.	VK6BE	to	JA8BP	30/10/58	5,490	,,
144 ,,	VK6ZCN	to	VK5ZHJ	8/1/65	1,330	,,
432 ,,	No claims					
576 ,,	VK6ZDS/6	to	VK6LK/6	15/12/63	101.2	,,
1,215 ,,	No claims					
TASMANIA:						
50 Mcs.	VK7LZ	to	JA9IL	3/12/59	5,426	,,
144 ,,	VK7ZAO	to	VK4ZAX	27/12/61	1,107	,,
432 ,,	VK7LZ	to	VK3AEE	15/1/65	282	,,
	No other claims.					
PAPUA TERRITORY:						
50 Mcs.	VK9AU	to				
	No other claims.		KH6DBY	30/4/60	4,312	,,

A complete spare kit of valves is now in hand except for Type No. CV187. A further two of these tubes are required to ensure reliable operation of the TX at all times. Therefore, chaps, dig deep and check your junk boxes—you may be able to help the project. VK4ZPL.

SOUTH AUSTRALIA

Now that Oscar III has ceased to emit its characteristic H.I. and telemetry signals, activity in VK5 has again assumed its usual winter doldrums. It could be assumed, however, that perhaps this acute lack of activity may be due to increased constructional incentive instilled to a large number at the most recent v.h.f. group meeting. This meeting, held on 2nd April, was most ably handled by Rob VK5RG and Bob VK5ZDX. The lecture delivered by Rob dealt with the pro's and con's of s.s.b., both theoretically and practically. A practical s.s.b. v.h.f. sideband transmitter was also outlined, and it is anticipated that the mass production of this unit will be undertaken by the majority as a group project. Bob's subject for the evening was centred on the reception of s.s.b. transmissions. His contribution for the evening was emphasised by displaying a receiver that he had modified especially for s.s.b. reception.

Apparently the urge by many to operate on the "gentlemen's" bands accounts for the increased slow morse transmissions available in VK5 to limited licensees. Heads down and tails up, chaps. It appears that VK5 has declared war upon the list of v.h.f. records. Official confirmation has been received on the VK6-VK5 2-metre contact between Andrew 6ZCN and Colin 5ZHJ to establish a record of 1,330 miles. Two other v.h.f. contacts by VK5 types are at this moment also awaiting official notification. These are the VK3-VK5 432 Mc. contact between John 3ZDM and Mick 5ZDR. This contact was made on 19th March at 0658 S.A.S.T. Signal reports of R5 and S3-5 were exchanged. It is anticipated that this contact will constitute an Australasian v.h.f. record. The remaining contact awaiting confirmation made by Trevor 5ZIS and John 5ZJH to Trevor 5ZTM and Rick 5ZFQ on 31st January.

Garry 5ZK and Al. 5EK having exploited what the low bands have to offer are reported to be considering a hasty return to the v.h.f. bands. 5ZHJ.

WESTERN AUSTRALIA

The field day on 3rd-4th April kept a few brave Hams quite busy. There were three field stations set up and two cars were operating at different positions in the evening and again next morning. They couldn't stand the cold or the mozzies. The latter were 6ZDO and 6ZAZ. The former were 6ZBD, 6ZAG and 6ZDB, who finished in that order with approximate points 6,200, 4,500 and 4,100. 6ZAG scored 960 points for four possible contacts with 6ZCN over 120 miles. Andrew was not very active due to T.V.I., and this is one reason for the scores being half as big as last time.

Six metres is very quiet nowadays, most of the guys are having an earful of 20 metres in the shape of VK5CD where a YL runs a most refreshing drop of ancient modulation. Now if we had somebody like that on 6 mx the band would liven up considerably. After me, Charlie!

Viv 6ZCM is having trouble with his 2 mx. rig. He can only be worked for the first half of any over and then he disappears. This trouble is not at all easy to fix. There may be a gremlin getting fiendish glee by disconnecting the other bloke's receiver after a certain interval. I'd try timing him, Viv.

6ZAG.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

Editor, "A.R," Dear Sir,—May I please request space in your letters column to explain to my many Australian Amateur friends that the sudden disappearance of 9M2DQ from the bands is not due to any calamity up here but because I have now been granted six months' leave and am off to the old country.

I would like to acknowledge the hundreds of QSO's which I have had and enjoyed immensely with the VK Amateurs. These are troubled times but I have only to get on the Amateur bands and feel the sympathy and support from you chaps "down under."

I had hoped on this leave to be able to see Australia and New Zealand but I have to return to England on business and hope later to be able to visit your wonderful country.

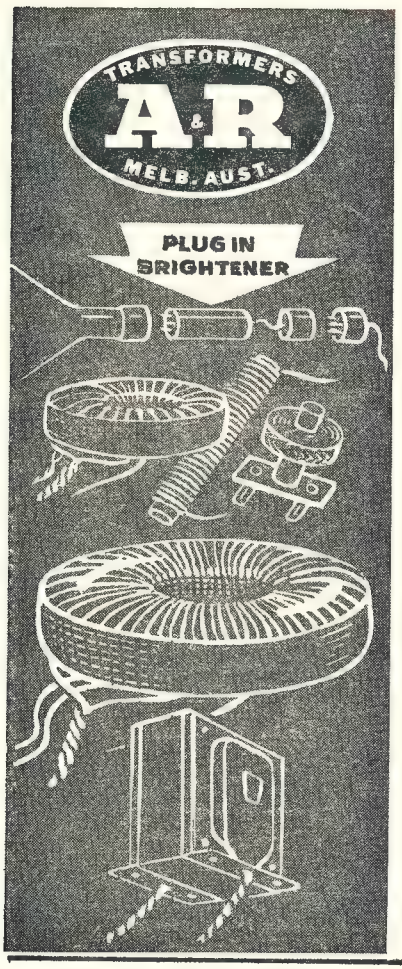
Hope to be back as 9M2DQ by October and in the meantime if my VK friends hear a weak signal filtering through from G3KPY in a bad location, then please don't forget that is

Yours truly,

Jimmy 9M2DQ.

South-western Zone Convention will be held in Warrnambool. Final arrangements will be given over VK3WI broadcasts.

VK3WK President.
VK3ARJ Secretary.



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SWL

Sub-Editor, Chas. Aberneathy, WIA-L2211,
30 Urunga Parade, Miranda, N.S.W.

For those members interested in the Moorabbin Radio Club awards the following is a list of member stations of VK3APC: VK3's ABO, ACS, ADO, AFJ, AFQ, AGZ, AHZ, AKB, AKN, APC, APD, ARD, AUL, AVU, AWO, AXC, BM, CB, CN, CW, EM, FF, JI, JL, KE, KV, LC, LZ, MX, OF, OT, PW, RN, SK, TE, TG, VT, XK, XS, XV, ZE, ZCB, ZCM, ZIP, ZIQ, ZIX, XMQ, ZNJ, ZNS, ZOO, ZOP, ZPC, ZPR, ZRD. Any member who requires further information please write to Greg. Earl, 7 Gordon Crescent, Black Rock, S.9, Victoria, who is handling the SWL section of the Award.

During the past 12 months it has been my pleasure to reply to all mail received at this QTH. Now, owing to the big increase each month, I find that it has become rather costly. As from the 1st June I would ask members who require a reply to please include in their letter a stamped addressed envelope.

SUPERHETERODYNE RECEIVERS

The superheterodyne receiver, invented during the first world war by Major Armstrong, achieves its unique advantages over the TRF receiver by converting all incoming carrier frequencies to a fixed, lower value (the intermediate frequency). At a fixed intermediate frequency the amplifier circuits can operate with maximum stability, selectivity and sensitivity and are not subject to the variable amplification and instability of the TRF circuit. The conversion of the received signal frequency to the lower IF frequency is achieved by heterodyning or beating the carrier frequency against a locally generated frequency.

As in the TRF receiver the modulated RF carrier signals intercepted by the antenna are coupled to a tuned RF stage, where the initial signal selection and amplification takes place. Because of the high gain and selectivity of the superhet circuit the input RF stage is someimes untuned, and occasionally it is omitted altogether.

The amplified RF signal is coupled to the input of the mixer stage, where it is combined with the output of a local oscillator. The two frequencies beat together in the mixer and generate an IF equal to the difference between the RF signal and the local oscillator frequency.

The frequency of the local oscillator may be either above or below the RF frequency (in practice it is usually above the signal frequency). The IF signal from the mixer is then amplified by several stages of fixed tuned IF amplification, and is coupled to the input of a detector stage, where it is demodulated. Since the circut has plenty of gain, a diode detector is usually used because of its low distortion and excellent audio fidelity. The audio signal from the detector is amplified by one or more stages of audio amplification until it is sufficiently strong to drive a loudspeaker. The loudspeaker converts the audio signal into sound waves corresponding to the original sound of the transmitter.

NEW SOUTH WALES

During April excellent signals were present on the 15-metre band, in fact, they reminded one of the conditions that prevailed some years ago. As the weeks go by we may experience increased activity on all the frequencies, well, let's hope so, for at least it may revive the interest that is lacking among the VK2 S.W.L.'s.

It is with deep regret that we record the passing of L2201 Barny Smyth. Barney was an ardent worker for the VK2 group, being one of the oldest members, and was always ready to assist with the knowledge that he acquired over the years. To all his relatives we extend our deepest sympathy.

Mac L2074: Thanks for the S.A.S.E. Latest cards to hand PY2 and YO3/MM.

Don L2022 has moved from Albury and now resides on the Blue Mountains.

Sid L2258 is busily studying for the A.O.P.C.

Jerry L2229: How about a word or two from down in the south-west.

Allan L2185: Thanks for compiling that letter. I do hope that it bears fruit.

Ray L2278: During April logged UA's, UB5, UT5 and YO8, and received cards from OH2, KW6, VE7, LU5, VQ8, KG6 and HM. Thanks for your interest in the card swapping section.

VICTORIA

From reports by VK, SWL's band conditions seem to have been most favourable on 15 and 20 metres, whilst a few openings on the 10-metre band were present on several occasions.

At each general meeting of the group there is a prize being given for the best log book submitted, the first of these prizes was won by G. Armstrong. The group had an inspection of a Melbourne newspaper office and a broadcasting station for early in May. We hope that all members enjoyed this technical visit. The monthly radio construction evening has been producing some interesting receiving sets ranging from expensive commercial types to the simple two-valve regenerative type. One of our female members was noted at one of these evenings with a newly acquired receiver.—Ian L3006.

How many readers of "A.R." are aware that VK3AHF is a famous entertainer who now associates himself with a leading circus, which operates between Melbourne and north Queensland. Bob operates almost daily from a caravan, look for the 30-ft. bamboo mast atop a caravan next time the circus visits your town.—Eric L3042.

Warwick L3211 spent the Easter period at Echuca, where using a dipole at 8 ft. managed to log two new countries, i.e., ZS6BBB/ZS9, and CT2AM. Cards received during April, OK1, MP4, PY2, GC2, KB6, SM5, OE1 and CT1.

Greg. L3139: Cards to hand, OA4 and JA9.

Eric L3042: Latest cards to hand, CR4, DU7, EP2, FO8, K2/JY, PY1, VK4 Willis, VK0, VS9, 4X4, 5B4, 9M4 and YO3/MM. Heard recently, 1.8 Mc., VK5KO, ZL3OX; 3.5 Mc., WA6, KV4; 7 Mc., UI8, G3; 14 Mc., VK9 Norfolk, VK9 NG.

Noel L3101: Heard VQ8, 6YA, JA7, OH4, W4, DO1, ZS6 and BV1, with a QSL from PY2.

Lloyd L3141, whilst at Echuca during the Easter week-end used a 5-ft. vertical and heard 80 countries. Recent cards to hand, PY2, VQ8, OA4, G16 and ZS2.

QUEENSLAND.

With the cooler weather approaching 20 metres usually folds up, and by July is useless. On the other hand, 3.5 Mc. is coming up fast with the easing of QRN, but no DX other than VK and ZL with an odd W. By June we shall have the W6's in on 3.5 Mc. A very good opening on the 10-metre band was experienced with all and sundry being heard. It was a real old-fashioned opening, no surge, good and clean, like old times. The 21 Mc. band is coming up, but weakens after lunch. Antarctica have been strong on a Sunday afternoon. After three or more years it is pleasing to once again hear VE and KL.—Afton L2136/VK4.

Afton L2136/VK4: Latest QSL's to hand, FO8AG, whilst those heard are VQ8, TG9, UA9, UN7, TI3, CP5, LA7, CR8, KM6, KL7, UL7, VJ8 and JA's.

SOUTH AUSTRALIA

Although a band condition report is not to hand from VK5, I would say that by the stations heard by L5's, the openings on the 15 and 20 metre were fairly good, whilst a few stations were heard on the 10-metre band also.

Alan L5065: Latest QSL's, KR6, UM8 and WN3.

Tony L5073: Heard recently FK8, CR8, OA4, TI2, JA3, SM3, UE3, YJ8 and W's.

WESTERN AUSTRALIA

Early in May the bands fluctuated somewhat with Europeans way down on 31 metres whereas they are usually very strong. Around 0300 G.M.T., when 20 metres is quiet, there was a number of W's, with the majority practically on the same frequency calling ZL4JF. During the afternoons 15 metres was good. It is sure strange what can happen when the sun starts playing up.—Peter L6021.

Bryan L6028: Heard recently ZE2, K6, CR7, JA6, W2, W3, K2, WB2, OA4 and YV5.

Allan L6029: Heard YJ8, JA3, JA3, SM4, IS1, YV5 and CR8.

Geoff L6030: Logged recently YA1, 9M4, VQ8, WA4, I1, OA4, KH6 and W2.

Peter L6021: Still getting among the DX by hearing JA1, UA0, JA8, 9J2, VQ8, ZE2, UL7, ZE1, CR7, 7Q7 and ZS6. QSL's received, CR9, DM, EP, GW, JA, LA, MP4, OZ, SP, UA2, UF6, UT5 and many others.

TASMANIA

During the past month 20 metres has been very noisy, and after 2000 hrs. virtually dead, whilst 15 metres showed promise of good openings with JA's and W's being heard around 1600/1700 hrs. Anonymous heterodynes appeared on the 15-metre band, fading from S9 to S2 at irregular intervals, and peaked from a N.N.W. direction from Hobart, no CQ's or contacts were heard.

GENERAL

QSL cards from VK0GS, 1964 operation in Antarctica should be in circulation by June, whilst VK2AGH has been busy mailing out QSL's for VK4TE, 1964 Willis Island operation.

From WIA-IQ comes news that the 20-metre band has improved considerably, with VK2 and VK3 signals coming in at a very good strength.

Gillies Wylie, 82 Glenpatrick Road, Elderslie, Renfrewshire, Scotland, would like pen friends, who must be keen S.W.L.'s.

Wanted, the QTH of ZD5R by L3211, Warwick Smith, 180 Princess Street, Kew, Victoria, and L5065, Alan Raftery, 22 Princes Street, Croydon, S.A.

For the card swappers, JA8-1412, Hiromitu Chohno, Niwa Kitahiyama-ato, Setana-gun, Hokkaido, Japan; JA1-2845, Isao Numa, 1-281 Setagaya, Setagaya-Ku, Tokyo, Japan; WPE2KOR, George Hall, 18 Miller Street, Saddle Brook, New Jersey, U.S.A.

I would like to thank all the regular contributors for their letters, bits and pieces that are all necessary to make this page possible. Be with you next month, but remember, add courtesy and consideration for other people's rights and everyone will be better off.

S.W.L. DX LADDER

	Countries Conf.	Countries Hrd.	Zones Conf.	W States
E. Trebilcock	285	293	40	50
P. Drew	165	258	36	36
A. Westcott	101	159	34	11
M. Hilliard ..	91	241	33	14
M. Cox	89	225	33	23
G. Earl	85	164	33	14
L. James	83	181	32	15
R. Kearney	79	147	32	—
W. Smith	72	180	29	7
N. Harrison	62	181	32	38
A. Raftery	33	154	21	9
R. Harrison	20	70	17	5
B. Prosser	17	136	8	2
B. Mackintosh ..	15	58	15	3
T. Corbin	12	34	9	—

Westlakes—Hunter Branch

Field Day, Queen's Birthday Week-end. Sunday, 13th June, at the Westlakes Radio Club, Teralba, N.S.W. Right at Teralba Railway Station.

40 and 2 metre Transmitter Hunts for Pedestrians. Competitions. Hot food available at the canteen.

Admission 5/- (to aid Youth Radio Scheme Funds).

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK5MS	24	316	VK2ADE	65	231
VK5AB	45	312	VK2JZ	61	229
VK6RU	2	307	VK6KW	4	211
VK6MK	43	304	VK3WL	14	211
VK3AHO	51	300	VK4HR	12	208
VK4FJ	21	283	VK3ATN	26	204

C.W.

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK3KB	10	330	VK2AGH	71	274
VK3CX	26	306	VK6RU	18	262
VK2QL	5	305	VK2EO	2	260
VK4FJ	29	300	VK3AHQ	79	260
VK2ADE	81	298	VK3ARX	66	250
VK3NC	19	286	VK3YL	39	240

Amendment:
VK3RJ 42 228

OPEN

Call	Cer. No.	C'nt-ries	Call	Cer. No.	C'nt-ries
VK2ADE	28	322	VK2ACX	6	300
VK6RU	8	312	VK3NC	77	287
VK4FJ	32	308	VK3JA	43	271
VK6MK	74	306	VK4HR	7	254
VK2AGH	83	305	VK2VN	18	247
VK3AHO	76	304	VK7LZ	23	242

W.I.A. FEDERAL PRESIDENT'S ANNUAL REPORT, 1964-65

(Continued from Page 15.)

sented by the Treasurer. Although the surplus for the year may appear large, the three certificates outstanding would have very nearly consumed this amount had they been printed as expected. There is a tidy sum in the Trust Fund, and I must thank the Treasurer for his great business acumen in continuing to bolster this with various F.E. trading transactions. It is with regret that I have to announce that the Treasurer can no longer carry on because of his private vocation. I feel the Institute will have lost a great deal by his retirement and I can only thank him for his years of endeavour and it is due to his efforts that the Federal Council is in a healthy position today.

During the year Executive held 12 meetings and attendances were as follows: W. Mitchell 12, M. Hull 12, D. Rankin 9, A. Seedsman 9, J. Lancaster 4, A. Tinkler 3, P. Williams 3, R. Boase 2.

Mr. Peter Williams, VK3IZ, at very short notice, assumed the duties of Federal Secretary due to the early retirement of Mr. Jay Lancaster from ill-health. I thank him sincerely for the easy way he has taken an onerous job in his stride and I personally am very pleased to welcome him to Executive. I am very sorry that Jay has had to retire but his health is paramount, and I know that all Councillors who have had the pleasure of working with him will also join me in wishing him better health in the future and thank him for four years' service in what I consider the most difficult job in the Institute. I cannot let this opportunity pass without expressing my wholehearted thanks to the Vice-president, who helped me through a difficult period when the Secretary was ill. I also wish to thank the remaining members of Executive for their assistance during the year and some of them will again be serving the Institute during the next 12 months.

I wish to conclude this report by thanking all Federal Councillors for their continued support and loyalty during my three years of office. This year has been a quiet one in some respects but from a public relations aspect I feel we have made considerable progress in relationg to bush fire communications and installing a station during the Scout Jamboree. The effect of even these two events will raise the Amateur image in the public eye. Next year will see some new faces on Executive and I wish the new members every success. I trust next year will see the introduction of the Federal Constitution without which I feel the Institute can not make further headway. With a new Federal Constitution and the fruition of some other ideas on improving the Administration, I feel the Institute will progress and attain a status worthy of our long history.

—W. T. S. Mitchell.

HISTORY OF RADIO

(Continued from Page 13.)

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"Amateur Radio": Wireless Institute of Australia, Melbourne; monthly issue.
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"Application Guide—Silicon V.H.F. Transistors": Radio Corporation of America, 1959.
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"Transistor Fundamentals and Applications": Radio Corporation of America, 1958.
"Twelve Inventions That Changed the World": United States Information Service, 1960.

APPENDIX FOUR

The Process of Modulation

Modulation refers to the process whereby the carrier wave is varied in accordance with the speech or music to be transmitted. There are two ways of modulating a carrier wave; by amplitude modulation and by frequency modulation.

In amplitude modulation the carrier wave consists of a series of waves of constant amplitude. When speech or music is to be transmitted the amplitudes of successive cycles are varied in accordance with the instantaneous value of an audio frequency voltage derived from the sounds by means of a microphone and amplifier.

With frequency modulation the amplitude of the carrier wave remains constant and the frequency varies in accordance with output received from an audio frequency source such as microphone and amplifier.

(The End)

☆

NEW CALL SIGNS

FEBRUARY, 1965

VK2ADI—J. A. Stewart, 10 Gore St., Arncliffe.
VK2BCI—G. Kempton, 44 Robinson St., Kogarah.
VK2BCR—J. K. Ridgway, 7 Massey Place, St. Ives.
VK2BJD/T—B. J. Dwyer, 38 Highgate St., Bexley.
VK2BKM—K. J. Kozlik, 21 Leichhardt St., Leichhardt.
VK2BWP—P. V. Inglis, 13 Knapsack St., Glenbrook.
VK2BWI—W.I.A. N.S.W. Division, V.h.f. and T.v. Group, 14 Atchison St., Crows Nest.
VK2ZJM—J. P. G. Mack, 78 The Crescent, Cheltenham.
VK2ZKL—L. G. Moffatt, 86 Bathurst Rd., Orange.
VK3GL—T. J. Dearn, Block 21, Stanley St., The Basin.
VK3PB—D. J. Kenner, 22 Clarence St., Elsternwick.
VK3AAK—J. F. Westley, Lot 12, Cuthbert St., Heathmont.
VK3ZBH—L. A. Grant, 12 Stott St., Box Hill South.
VK3ZGA—A. D. Swinton, 760 Waverley Rd., Glen Waverley.
VK3ZHI—J. G. Finlay, 84 Carpenter St., Brighton.
VK3ZPT—A. R. Thomas, 47 Elphinstone St., West Footscray.
VK3ZTV—A. G. Lyall, 616 Bell St., Preston.
VK3ZWT—G. A. Wallis, 19 Corby St., North Balwyn.
VK4HI—F. A. Herrmann, 30 Jellicoe St., Toowoomba.
VK4JS—J. A. J. Gravina, Flat 1, "Dorelle," 13 Dorchester St., Highgate Hill.
VK4ZDP—D. Parker, C/o. 1 Farrington St., Alderley.
VK4ZMC—C. W. McCamley, Main Rd., Maroochydore.
VK4ZNL—N. G. Loury, 61 Prout St., Camp Hill.
VK4ZSP—S. J. Pratt, 83 Chamberlain St., Tarragindi.
VK5GQ—D. G. Quarrington, 11 Lassie Ave., Windsor Gardens.
VK5LO—R. K. Westbrook, 42 Chillingworth Rd., Elizabeth East.
VK5ZEP—J. C. Hilditch, 7 Galloway Rd., Christies Beach.
VK5ZJA—J. A. White, 3 Brookman Court, Blair Athol.
VK5ZMM—M. J. W. Mitchell, Park Drive, Lucindale.
VK5ZSH—S. G. Hill, 19a West St., Brompton.
VK6GO—D. A. Goddland, 175 Weaponess Rd., Wembley Downs.
VK6OB—D. B. O'Brien, 2/744 Beaufort St., Mt. Lawley.
VK6SW—W. Stevens, 134 Hillview Tce., Bentley.
VK7TX—B. M. Muir, 126 Montagu St., New Town.
VK7ZLD—W. G. L. Dowl, 33 Jubilee St., Young Town.
VK7ZUW—R. B. Trollope, 69 Federal St., North Hobart.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

FEDERAL EXECUTIVE, 1965/66

The following appointments have been made for the Federal Executive for the year 1965/1966:

Federal President: Max Hull, VK3ZS
Federal Vice-President: Harold Hepburn, VK3AFQ
Federal Secretary: Peter Williams, VK3IZ.
Federal Treasurer: Kevin Connolly, VK3ARD.
Fed. Activities Manager: Dave Rankin, VK3QV.
Fed. Business Manager: Alf Seedsman, VK3IE.
Fed. Communications Manager: Bill Mitchell, VK3UM.

The following officers have been co-opted to assist the Federal Executive:

QSL Officer: Ray Jones, VK3RJ.
Awards Officer: Alf Kissick, VK3KB.
Historical Officer: George Glover, VK3AG.
Y.R.S. Officer: Rex Black, VK2YA.
Contests Officer: Jim Rumble, VK6RU.

ANNUAL SUBSCRIPTIONS TO A.R.R.L.

The A.R.R.L. has announced that as from 1st January, 1965, no further membership subscriptions to the A.R.R.L. will be accepted through news agencies or booksellers in Australia or other countries of the world. Normal subscription rates to QST through booksellers and news agencies will, however, continue to be accepted at a rate of $7.00 per annum. The W.I.A. has concluded an agreement with the A.R.R.L. whereby it will handle any membership subscriptions to the A.R.R.L. (which of course includes their magazine "QST") at a rate of $6.00 per annum, and direct subscriptions for QST at a rate of $7.00 per annum. All existing subscribers in Australia are being circulated and notified of these changes, and elsewhere in this issue details are given. Direct membership subscriptions by money order, bankers' draft and cheque may still be directed to the A.R.R.L. However, it is hoped a large number of subscribers will now find it more convenient to renew either membership subscriptions or QST subscriptions through the W.I.A. All renewals should be addressed to the Federal Business Manager at his home or c/o Box 2611W, G.P.O., Melbourne.

OFFICIAL W.I.A. NET

At the recent Convention in Melbourne it was agreed to re-open the old W.I.A. net. This network operated for several years very successfully but was dropped when the then Traffic Officer was unable to carry on. The re-opening of the net will be largely dependent on Divisions appointing Traffic Officers in their Division to make contact with H.Q. station, VK3WIA. It is intended that the Federal Communications Manager will be available at the H.Q. end when this net is re-opened.

SPACE GOALS 1971-1985

The Space Science Board of the National Academy of Sciences in the U.S.A. has announced a concentrated programme for the unmanned exploration of Mars over the next 10 to 15 years from 1970. Judging by the rapid advances made recently in the space programme it is feasible that by 1985 Mars will be "manned" for exploration rather than "unmanned." This being so, one does not exclude the possibility of the inclusion of an Amateur in this space DXpedition—so DXers high up on the Countries List may soon have a near endeavour—W.A.S.P.—Worked All Sun's Planets!

OZ-CCA 1964 RESULTS

Only two VK's are mentioned in the results of this Danish Contest for 1964.

VK2APK	161	486	59	28,674 pts.	C.w. section
VK3TL	76	219	49	10,731 pts.	C.w. section

No VK station apparently took part in the Phone section of this contest.

The 1965 Contest took place during the first week-end (C.w.) and third week-end (Ph.) in May, 1965, and the rules arrived too late for publication.

S.W.L.'s IN NORWAY

A complete list of Norwegian S.W.L.'s with addresses has been received from the N.R.R.L. Any S.W.L.'s in Australia who wish to may obtain information on any address by applying through the official box number.

I.T.U. FUND

As at 8th May contributions to the fund as a percentage of the target set for each Division at the Sydney Convention, 1963, are as follows:

VK2	20%	VK5	54%
VK3	50%	VK6	100%
VK4	50%	VK7	100%

These figures do not necessarily represent the amounts received by Divisions but only those forwarded to Federal Executive. Congratulations to VK7 and VK6, the first to fill their quotas. Please continue to send your subscriptions through your Division.

— . . . —

FEDERAL QSL BUREAU

V.E.R.O.N., the official Amateur body in the Netherlands, points out that the QSL Bureau address shown in a recent issue of the Callbook is that of a minority group and its use will entail delay or loss of QSL's. They stress that the official QSL address for PA is:

QSL Bureau, V.E.R.O.N., Postbox 400, Rotterdam Netherlands.

The Radio Club Veneuzalano forwards details of a contest to be held 1000 G.M.T., Saturday, July 3, to 2400 G.M.T., Monday, July 5. While it is not specifically stated that the contest is phone only examples of log details seems to indicate that such is the case. Further details can be had from this Bureau.

An interesting homecomer to VK during March/April was Ivan Thomas, VE8NT, now located around Yellowknife, N.W.T. Ivan, who is ex-VK0IT of Macquarie Island, and later at Wilkes, plans to remain in the N.W.T. for a further three years before returning to permanently settle down again in Australia. He married in Sydney during his present visit and his bride has accompanied him back to the N.W.T.

Interesting QSL statistics were revealed in the annual compilation to the end of the W.I.A. year—February, 1965. Cards handled at this Bureau in the period totalled 53,249. Comparative figures are:

1960	43,524
1962	47,578
1962	47,573
1963	49,986

Peak year was 1947, with 65,469 cards. Each 100 cards represents one hours' labour overall and I do not think the time and motion study cranks could effect any reduction therein.

—Ray Jones, VK3RJ, Manager.

— . . . —

NEW SOUTH WALES

OFFICE-BEARERS FOR 1965

President and Chairman of Council: I. M. Agar (VK2AIM).
Senior Vice-President: W. J. Lewis (VK2YB).
Junior Vice-President: J. C. Young (VK2OY).
Secretary/Treasurer: Mrs. Betty Gerdes (Assoc.).
Registrar and Minute Secretary: W. Johnston (Assoc.).
Hon. Solicitor: W. Clark (Assoc.).
Auditor: H. Isherwood.
Communications Officer: D. Duff (VK2EO).
Education Officer: H. Burtoft (VK2AAH).
Supervisor, Y.R.S.: R. Black (VK2YA).
A.O.C.P. Supervisor: C. E. Bardwell (VK2IR).
Bulletin Editors: G. Sabin (VK2AGS) and W. Johnston (Assoc.).
QSL Officers: S. Molen (VK2SG) and E. Whiting (VK2ACD).
Morse Practice Training: F. Pearson (VK2ACQ).
Disposals Committee: K. Squires (VK2SD), W. Kuhl (Assoc.), S. Kuhl (VK2ZSK).
W.I.C.E.N. Supervisor: V. L. Cole (VK2VL).

SILENT KEY

It is with deep regret that we record the passing of:

VK2AXH—W. H. Hannam.
VK2APJ—A. Simmonds
L2201—B. Smyth.

O.C., Dural Property: D. Duff (VK2EO), assisted by L. Cartwright (VK2ZJC).
Librarians: Mrs. Hebe Grouse (VK2AOK) and C. De Haan (VK2UE).

SYDNEY Y.L. GROUP

During March the Sydney Y.L's had a very interesting and instructive visit to the Amalgamated Wireless Valve Factory. As the group is so small the O.M.'s of the C.C.A.R. Club were invited to join us, so we had a group of about 12.

The factory employs about 900 people making everything from T.V. picture tubes to transistors. Our guide was VK2FO.

The visit was part of our regular quarterly meeting and after leaving the factory we adjourned to the shores of Parramatta Lake for a picnic lunch. It was a very pleasant finale and gave us a chance to hear about the activities of Hebe VK2AQK with the South-East Asia net and her contacts with the Australian bases in the Antarctic.

Muriel VK2AIA is probably the best-known Y.L. in Australia and makes many interesting DX contacts. Verle VK2MR is confined to 20 metres. I hear a whisper that she and O.M. VK2CM are going on a personal inspection of Europe next year. Mona VK2AXS has been getting a bit of practice on C.w. lately.

CENTRAL COAST AMATEUR RADIO CLUB

The annual meeting of the Central Coast Amateur Radio Club was held recently and the following executive was elected for this year:

President: E. Hodgkins, VK2EH.
V.-Presidents: A. Swinton, VK2AAK and F. Adams, VK2ALA.
Secretary: G. Mann, VK2XA.
(All correspondence to be sent to G. Mann, Descombe Road, Wyongah. Phone Wyong 5-1140.)
Treasurer: P. Day.
Publicity: F. Pearson, VK2ACQ and M. Swinton, VK2AXS.
Official Greeter: Gary Tibbett, VK2UX.

Our new prisident has a very long history in the Amateur radio field and held the position of president of the Lakemba Radio Cub for a period of five years during the 1930's. He also served as vice-president and councillor for the Wireless Institute of Australia VK2 Division for a year during this same time. He also donates one night a week to the Slow Morse session, his night being Tuesday, and has become as keen on the subject at Frank Pearson, VK2ACQ, whom everyone knows as the brains behind this valuable service to all Amateurs and those interested in getting their A.O.C.P.

Ernie has lived in the Central Coast district since 1945 and is very well known as a teacher at Gosford and Wyong, and many far-flung parts of our State.

Gary Tibbett is the youngest member of the group, having just turned 16. Already he has chalked up quite a few countries and seems to be a keen C.w. operator.

The week-end before Easter a trip was made to inspect the Overseas Telecommunications Centre at Bringelly. In spite of rather gray skies it proved to be a most enjoyable and interesting trip. Geoff. Warner, VK2CK, was our host for the day, which accounts for everyone having such a good time. Geoff. was indefatigable in his efforts to answer all questions and to see that we inspected all corners of the station. There are 36 rhombics at O.T.C. covering 620 acres of land—not all of it taken up with the aerials but it seemed like it. We saw a lot of beautiful equipment which any Amateur would give his eye-teeth to possess. Bringelly also has an historical background and at one stage of its early years was a resting place for convicts en route to the Blue Mountains. The original homestead is still there and being used as a home. Sixteen people travelled down from Gosford and we wish to express our thanks once again to Geoff.

The Canberra Convention proved a lure for half a dozen Amateurs from the Central Coast Club and from the looks of things, next year will see more attending. The week-end was full of interest and pleasure and the Canberra Club did a magnificent job in arranging such a variety of visits covering the scientific field as well as radio. One of the highlights was the visit to Tidbinbilla Space Tracking Station so recently opened. The antenna is a dish 85 feet in diameter and placed 120 feet in the air but as it was so perfect in its proportions

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On 19" Panel, £17/10/-.

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Complete with Coil Boxes. A to E.
Rack mounted, with a.c. supply and speaker, £45

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Pair 809's, fully metred and mounted on 19" Panel, £7.

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it was hard to realise its tremendous size. This station is one of six scattered around the world which makes one railse how important Australia is in the development of future space vehicles.

Apart from the radio side of the visit to Canberra, there are many other visits to be made—to the War Memorial, Parliament House, sightseeing in general, etc. All of this makes Canberra an ideal spot for a convention as it caters for the Xyls and harmonics as well as the O.M.'s.

Alec VK2AAK is to have a two-week spell in Gloucester House, beginning April 28, for general repairs. He will have a phone beside his bed and will welcome a ring. —VK2AXS.

HUNTER BRANCH

Don't some people go to diabolical ends to make fox hunts "different." Well, it seems that way after hearing the talk given by Alyn 6ZDM at the May meeting of the branch. The countenances varied from shocked to wildly amused as Alyn unfolded his story of the Institute activities in VK6. It seems that the organisers of these contests, with whom he was closely allied, went to great lengths to make the finding of the fox a feat like that of discovering the New World. However, Columbuses were found among the residents of "the West" and the radio source was always found, even though many evil tricks were used in the hiding. Imagine, if you can, the workings of the mind of someone who puts on two C.w. transmitters 1000 cycles apart and half a mile apart so that hunters **think** they are hearing a tone. Apparently sorcery and black magic are illegal in VK6—perhaps just as well!

The president was unable to be at the meeting and guess who stood in for him? He, the pres. that is, said that he had just returned from a long car journey, but by the hat he was wearing, I'd say he was just back from the Canal Zone—blue ribbon and all; However, many of the well-known locals were in attendance. Mac 2XMO had brought along his mascot, Stan 2AYL was playing patience with QSL cards and we were fortunate to have four visitors—Graham Huntriss of NCR, Bill 2ZAJ and two students from the Tech. High Radio Club, Neil Kilgour and Frank Cottrell. While thinking about NCR, I was delighted to receive recently a letter all the way from the U.S.A. from Roy W8LUZ—especially as he said he enjoyed reading "A.R." Ron 2ADA has been visiting Ohio and was staying with W8LUZ when the letter was written. According to Roy, the local boys had been having quite a field day working VK stations and some calls mentioned were 2AAT, 2AVA, 2ADK and 3AC. The only question which I have to ask is, when are Tony and Graham being sent across the pond by the old firm—or is that sub judice (a term I learned at the Federal Convention!).

Have you listened on 160 metres lately? The signals are coming good now that the winter is here and some of the VK3 boys are having a good deal of success with DX. How about some more branch members for this excellent cold weather band? Stan 2AYL has a very good signal, Bill 2ZK is on quite often and Jan 2BJO now has the modulator complete and is testing the transmitter. Of course, 2AWX is a reliable signal on Monday nights and should be even more so now that the half wave folded dipole is in operation. Even Bill 2ZL has the equipment—an AT21—but when he turns it on the street lights go dim, so I am told. Actually, the railway track in the back garden is really a hula hoop antenna —but I'm sure you knew that already.

Two members of the newly formed Y.M.C.A. Radio Club in Maitland, Harry Sinclair and Dick Brownell, visited the Westlakes Club on the Governor-General's holiday and things look like going ahead as far as YRS is concerned. If any of you Maitland chaps feel like giving them a hand, I'm sure they'll appreciate it. A visit has also been promised by Chris 2PZ and his merry men from 2AXC in Cessnock and the Westlakes boys are looking forward to meeting the representatives of that northern city. Just now there is feverish activity in preparation for the Westlakes-Hunter Branch Field Day, which is to be held on Sunday, 13th June, at the club. There will be transmitter hunts and the usual competitions but most of the hunts—and it is hoped there may be eight all told—will be for pedestrians. A short-wave transistor portable makes an excellent DF receiver for 40-metre hunting. If your choice is for two metres then the excellent "sniffer" designed by the v.h.f. group is a must. All the details are available from the group or you will find the circuit in the April Newsletter. Even if you have no equipment, come along and we'll lend you some. Since it is quite likely to be cold, hot food will be available from the canteen and there will be tea and coffee as well as Fanta and the like.

The June meeting on the 4th in Room 6, Clegg Building, at the Tighes Hill Tech., will be a "standing room only" affair I am sure because Keith Jeffcoat 2BK will be there to talk about the "Amateur Band Ten" and a new s.s.b. transceiver. You should not miss this meeting so drag yourselves away from the cosy T.V. set and come along. We'll even arrange for a larger room if it is necessary.

I must give you a riddle to conclude this month's notes. The question is, who is the "baby doll" on two metres? I was told that this station had only 33 contacts in the log, but I'm sure that it has been multiplied many times by now. Have you guessed yet? I'll let you into the secret at the meeting, or the field day, and the subject in question will be there, too. —2AKX

— . . . —

VICTORIA

After a long lapse it is hoped to find time each month to compile a few notes to cover VK3 Council and general meetings for the benefit of those who may miss hearing the weekly broadcasts.

May 5th saw a full house for the annual general meeting of the Division. The president's report gave full coverage to all activities for the past 12 months. It will, as usual, be printed and circulated to all members, so it will not be covered here. The treasurer's report shows our finances to be in a healthy condition, and apart from a couple of very minor queries everybody appears satisfied with the position.

Only 10 nominations were received for Council and after some confusion and good natured banter they were declared elected. The 10 include eight of the old Council, namely VK3OR, 3YQ, 3AFJ, 3ACS, 3ZEL, 3ZEO, 3ZIQ and 3ZJF plus our two new members, 3ARV and 3ARZ.

As John 3OR is unable to continue as president, the meeting made a recommendation to Council for the new president, which will upset a certain publicity officer who boasts of how his divisional meetings fill a public phone booth every month.

After closing the annual meeting we moved to the general meeting, which gave us the opportunity of admitting 22 new members, a most satisfying state of affairs. Michael, our Federal Councillor, gave a short (?) report on the Easter Convention. It is expected that F.E. will shortly have a report ready for "A.R."

To round off the evening, Ken 3TL spoke on his recent DX-pedition to Norfolk Island, illustrating his talk with some very fine photographs.

The last meeting of the old council was held on 26th April, with Pierce 2APQ as a visitor. Among the many matters discussed were Sunday broadcasts on s.s.b., the Kinnear Trophy, the use of the room for F.E. meetings, the Federal Convention, provision of equipment for A.O.C.P. classes, the library, and problems confronting the Publications Committee.

It was decided that initially s.s.b. will be used on 80 metres although this may prove a problem to some S.W.L. members who rely on domestic dual wave receivers.

The Kinnear Trophy goes to the Eastern Zone for their outstanding efforts during the recent emergency. The trophy is at present being reconditioned, but will be presented in the near future.

Council agreed that F.E. should use the rooms, both for their meetings and storage of their records. It is felt that a central location will enable them to work more efficiently, especially if we can give them some secretarial assistance.

Now that other teaching organisations have discontinued their A.O.C.P. classes we are getting full enrolments, in fact, have a waiting list. The class instructor is preparing a list of suggested equipment to be acquired for these classes, the list to be considered at the next council meeting.

Certain magazines are in heavy demand and to ease the load duplicate copies of some will be purchased. It would help if those taking magazines and books from the library would return them in the shortest possible time.

MOORABBIN AND DISTRICT RADIO CLUB

This month I cannot write that this column will contain very little news of the month as I have been assisted in my task with the dobbed in services of Ken ZNJ. The Club's usual monthly meetings were well attended. For interested persons, the Club's monthly general meetings are held the third Friday in each month at the clubhouse, found at the rear of 17 College Grove, Black Rock. On alternate Friday nights a practical evening is held. The practical evening during May consisted of a White Elephant Night. This was very successful both from the members' point of view and of course the treasurer's. A wide variety of "things" passed hands and junior members were to the fore procuring cheapies by the dozen. Old B.C. sets, rich in parts, were purchased and given away. It is hoped that these budding hams will put the parts to good use, and who knows, become the basis of a good communications set. An 80 mx. transmitter hunt was held in May. Lindsay ZNS was in charge of the party to plant the gear. And what a cunning-type possie was chosen. The antenna consisted of a vertical attached to a steel tower approximately 60 feet in height. The tower was in turn attached to some power lines which in turn worked as an excellent radiator. Much to the dismay of the occupiers of a certain tail light alley adjacent to a drive-in theatre, the transmitter was finally hunted down by Colin XV and Peter XK. Last but not least were Ken ACS, Joan (Mrs. ACS) and Harold AFQ. Of course, Joan always accompanies Ken on these hunts—for moral support. The June social evening will be held at the QTH of Harold AFQ, on Saturday, 25th June. At recent socials it has been noticed that a few new faces have been appearing. All members or visitors are welcome and a good time is always assured. Now on to the monthly guff—my XYL, Ruth, a keen listener (you have to be in our household) tells me that Keith AKB is working on a new antenna to replace or repair the damaged beam. Keith is frequently heard on 2 fm from Upper Beaconsfield. Stan ZE is knocking them back by the dozen on sideband and is seen each meeting sporting a fist-full of QSL cards. Don ZGQ is on 2 metres using s.s.b. and my spies tell me that he is at present gaining the superior knowledge of c.w., ready to take the step. Another member of the s.s.b. club is Alf LC, who is frequently heard on 40. The two-metre crew are wondering when they can expect to hear your melodious voice on this band again. Peter ZPC is in the midst of constructing a linear final for the 2 a.m. rig. Merv LL and XYL Val were in town recently and entertained at the home of Ken ACS. Merv. now sports an f.m. rig and it is suggested that anyone with similar gear, switch on near Bairnsdale and you may be rewarded with that rare bit of DX. Merv. has been heard around the city on recent visits. Kevin ARD was noted for his fine opening remarks on Mothers' Day at the commencement of the 3WI weekly broadcast, and to top it all off, it was equally noted that another feminine note was introduced into the haven of men, a YL, SWL, Elizabeth was allowed to read the notes for this section.

We must congratulate Kevin on his recent appointment as a member of the Federal Executive of the WIA. Whilst on the subject of the latter, Ken ACS has been appointed Secretary of the Victorian Division of the WIA. Harold AFQ has been appointed to the Federal Council of the WIA. There is no truth in the rumour that the Moorabbin Club is infiltrating and about to take over the WIA. Harold AFQ, in between times, is working on s.s.b. gear and it is believed that the exciter is producing duck type emission. Lindsay ZNS can vouch that this is true. Bob ZRD has not been heard on 2 a.m. He has, however, been heard consistently on 2 fm, always at the rather late hour on mornings of approximately 0915, I should know because I hear him. One morning recently after Val OT accused him of being late, he informed the Net that his boss was a kind gentleman, and in fact a few days prior to the morning in question, Bob's car broke down and his boss picked him up, at his QTH at some time considerably after the time when they were both supposed to be at work. Looks like someone will have to check up on the boss. Bob has been pretty busy down at the Brighton Scout Hall keeping the Cubs, etc., in order. Off the record, I believe that Harold AFQ is going to sell his bug at the next White Elephant night, key thumping will be a thing of the past when the new rig is bugged. He auctioned three keys at the last White Elephant night, maybe one came from the QTH of Harold—they were on the suspected list. Wally AHZ has been involved in scouting activities with very little time for Amateur Radio. Wally and XYL Shirley entertained club members at their QTH recently when a Social Evening was held at their home. Jack VT was seen at the club's auction, and after everyone departed for their homes and the room locked up, he reappeared at the QTH of Hal ZOO. An eyeball continued and after partaking in the hospitality of ZOO and his coffee pot, the party was finally broken up at 0230 hours. Jack must be making up for lost time on the air—hi. I missed out on this one earlier on in these notes—Ken AFJ was recently elected to the chair of President of the Victorian Division of the WIA. Congratulations Ken, now this should

upset PanSy. David ZOP has been having trouble with his FM rig. Those rosy red plates of his 3/12 really keep the car warm, or is it the heart of Geraldine. I believe the trouble (of the gear) has been overcome and we should now hear the Zoppy call sign again. Incidentally, we must record our thanks to David for presenting the club with the disposal valves and warn the fortunate finder of a 3/12, which was contained in one bag of valves, to be wary of this "goody." Hal ZOO was recently kidnapped and ended up working portable on the May 2-metre scramble. He claims that he was taken for a ride by a couple of scruffy looking individuals, by the names of Ken ZNJ and Darrel ZNC. They deny this. He came along for the ride. And Hal is pleased to announce that he will be making a fresh appearance on 2 a.m. A certain Beaumaris station was heard to mumble under his beard "not before time either." In fact, the club was about to organise a practical evening at the QTH of Hal for the purpose of instruction in the construction of a suitable power supply to work the ZOO 2 a.m. rig. Col XV did the right thing at Easter, painted. Who invented that horrible word. Tom ZIQ up to recently was heard on 2 F.M. with the 0900 gang. Tom has been appointed to Council of the Victorian Division of the WIA, we know Tom will live up to the reputation of the Moorabbin Club. Fred ARK is heard frequently on the 2 F.M. net frequency. Neil ZRT, I have been informed, is a member of the midnight brigade, too late for me. Max DF is in the process of repairing his antenna, it would have been fixed earlier, excepting for a certain wet Sunday. Max is heard frequently mobile. Max did a sterling job at the barbeque held at Ferny Creek during the Federal Convention, providing the portable gas rig to cook the sizzling steaks and snagaroos. Whilst on the subject of Ferny Creek, we must mention that Hal ZOO and XYL Kay were first in when the F.M. caper was held at the picnic, organised by John ZCB. That is all for this month. 73, 3XK.

SOUTH-WEST ZONE

The zone is very active again with 3HF Harry having regular contacts with VK7IL Bob on King Island. 3WK Bill has returned from a trip to VK2 land having seen VK3ZKL Lindsay Moffatt, who passes on his best 73's to all his old zone mates. Bill also called on VK2AKF John, whom he works regularly. 3AKN Don is always active and passed on a lot of notes to me. We were visited in our area by 3ZER Ron from Ballarat, who had had a holiday at Portland, also 3ZL Eric from Ballarat who spent a holiday recently at Warrnambool with a very nice home-made s.s.b. rig from which he enjoyed a lot of very good QSO's. He was also 3FX's guest whilst here, both Peter and his mother enjoyed their company.

Peter has a new Galaxy s.s.b. rig which is a real flame-thrower, he also has his quads up again. 3EQ Norm also has his quads back up and working. 3JA Jack has returned after a trip to Fiji. 3ANQ Eric has been active at regular times. 3AGD John has regular skeds with 3ARL Lin, of Mitcham. VK3AAW Y.M.C.A. Radio Club is active on 80 metres. 3SE Stan of Ballarat has donated an SCR 522 transceiver to us for which we are extremely grateful.

The zone convention is due any day now so keep your ears to the receiver.

WESTERN ZONE

News from way out west and beyond. Have not been on zone hook-up for weeks so have not been able to ask for news. The regulars come on 80 at 8 p.m. on Wednesday to keep zone on the air.

Bill 3AKW still enjoying long-service leave. You do not seem old enough for that Bill, but the years roll by don't they? Heard Bill say that he was getting a new Getterarounder. Cannot find that one in my dictionary, but the mobile gear is to be altered to suit the new monster. Bill thought he was going to get all the odd jobs done around the farm during this leave, but he soon gave that idea away.

Lyle 3ASA has been doing some coaching to help some others to get on the air. For relaxation he spends his time sky-diving. We all take our pleasures differently.

Bert 3EF spends a lot of time racing around the countryside to attend meetings but so far has managed to keep Wednesday evenings free.

Roy 3AOS hopes to be on 80 soon. Has been working with John 3AFU on 2mx. fm. John has been active with mobile gear on various frequencies. At the moment is experimenting with 160 mx. whips. Like the rest of the farming and grazing fraternity he would like to see about two inches of rain.

Herb 3NN had some trouble with the gales. 80 mx. dipole and 2 mx. beams were damaged. The main tower is being altered so that it will pivot 25 feet above the ground in order that beams can be repaired more easily. One T.V. tower in the district works on that principle Herb, and it has a 44-gallon drum of water and a bag of oats as a counterweight.

Harry 3ZX has been active on 20 mx. and passed on the news that Chas. will be home from the Gilberts in July.

No sign of George 3ZEA on 2 mx. lately. Heard that George is concentrating on C.w. Good luck, George, sorry that no one is able to offer you any short cuts.

Merv. 3AFO may be shifting Albury. We will miss you if you do Merv.

Oscar III created some activity in the zone. Those most active were Ray 3ATN using some sort of parabolic antenna, Herb 3NN and Garry 3ZOS using a 40 element phased array and Tony 5ZAI using a twin Helix with a 12 ft. x 6 ft. reflector. As an offsider, Tony had the help of Colin 5ZEV who travelled 100 miles every fortnight to help with the tracking. Colin is now on the way to VK9 so we hope to hear from you on 6 mx. Colin. Tony expects to have a remote controlled transmitter running higher power by the time Oscar IV is launched later in the year.

Bill 3ZAX, Graham 5ZOF and Tony are working hard to get 2 mx. mobile gear ready for the convention at Mt. Gambier on Queen's Birthday week-end.

Barry 5YB has moved from Keith.

Rodney 3UG settled down to married life in Sale. He had a flying trip home recently to inspect damage caused by the fire which went through his father's property.

Roy and Bob from South Kaniva, with assistance from XYL's, have done an excellent job on fire network.

Bob 3ARM mainly active on 2 mx. Getting much better results now that the beam is up 45 feet. Will have new h.f. rig with Geloso VFO when the ship comes in (literally that is—have given up hope of the other one).

—VK3ARM.

— . . . —

SOUTH AUSTRALIA

"A funny thing happened to me on the way to the forum this morning." I received a letter from Divisional Secretary John, asking if I would fill in for Higginbotham Award winner Pansy Parsons, and do the notes for him for a month, whilst that rotund little man went on a dubiously earned rest. This is too good a chance to miss, and is an opportunity to pick up some threads that he has left dangling, pursue some subjects that he ignores, and possibly for this Division to make friends with VK4, and a certain VK3 type who has kept Pansy on the run for many years.

Just before leaving him alone, and who could ever do just that, it may not be generally known, but Pansy takes himself off at Easter each year to rough it in the country up in the Hills District somewhere where races or some such athletic activities are engaged in, and as a result of being so close to nature, and being fed on the fat of the land, returns to work (what a horrible word) all fattened up and brown, not unlike a well-roasted duck—now talking about ducks . . . No, let's leave that for later.

One year he included almond picking in the itinerary, the final outcome of which provided even more Pansy amusement than he bargained for or would have planned. The whole story is a long and painful one, but if you try and picture this round little figure on the top of a ladder, with arms upstretched to extend his reach with a stock to get the last elusive nut, and the consequent girth reduction such a posture would produce, then figure what happened to his belt-supported Fletcher-Jones and how his feet became "locked" on the ladder top. Just add a most unsympathetic female audience, which included his long-suffering XYL, who is not behind in a sense of humour, and you have a situation where even 5PS was stuck for words, and that is saying something. Have a good time this year Warwick and do please come back with at least a product detector.

Now to business. The Divisional April meeting was held to a slightly lower than normal attendance, who heard an able lecture by Mr. Don Thompson on colour television. Don gave the rundown on the number of sciences involved in development of equipment needed to put colour into the picture. A bit ahead of time for this country, but then isn't VK5 always ahead of things? A most informative talk, to an appreciative audience of a most complex subject.

Other business at the meeting included a brief report on the Federal Convention by Federal Councillor Geoff Taylor, who had some rather pithy comments on the tenure of

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office of the State Councillor, and the advantages that would result from a longer term than that now provided by the policy of the VK5 Division. Maybe we will hear more of this in due course, and at the right place, when things can be finally thrashed out, and ample time given to debate. We all look forward to a full report of Convention and the actions that will result from it, particularly in regard to the new Federal body. It has been noted that our president has called for anyone with company law or company secretarial experience to come forward and assist in the sorting out of matters where the new Uniform Companies Act applies. Surely, there are a few members with company experience who have gone through these matters for their own organisations, who can now assist, so don't stand back fellows, come forward, for your assistance will be greatly appreciated.

Then oddly enough the announcement was made that VK5 had won the RD contest, nothing odd about us winning it of course, we have done that before, but to coincide with a VK5 v.h.f. man winning the Ross Hull trophy, gave us the full ticket for the year, no mean feat.

The Divisional Council thanks all those who worked for, and submitted logs for the RD contest, for in spite of any high individual score it is the Division as a whole which contribute to the success and finally the win. The same gentlemen also thank Mick 5ZDR for his effort in personally working for, and bringing the v.h.f. trophy to this State for the second time in a row. It is understood that Mick now has the actual trophy on display at his QTH.

Recently, for those of you who will admit watching the goggle box, you will have seen a series of ads. quoting "Get with the strengths"—well, have you done this? By strength I mean s.s.b., whether it is by h.f. or v.h.f. At the time of writing these notes, and the figures are rising very rapidly, there has been recorded at this QTH 610 active s.b. stations on VK call areas, 67 of which are in VK5, and they represent the most active group on the bands, so if you want to be in it, home station of the first call, or mobile if you do that, then go s.s.b. and join the strength.

The growth of use of this method of phone has been quoted recently by Lindsay 2ON, and needs no further comment here, beyond that it is snowballing into the v.h.f. bands as well.

Some years ago we used to hear about "Ham happy Woodville." But have you heard about "Ham happy Gawler"? Where there are no less than seven active types within a mile of each other, sharing the various bands from 80 through 2 metres, and using gear all as distinct from each other as it is possible to get. Do they get in each other's hair? Of course they do, but they get out of it without having to save stamps, except when competitions are on, then the bands are left to the competing members.

According to the good books, if you want to avoid T.V.I., and get the best out of your rig, the best DX reports, etc., then you must use antennas cut to exact frequency, feed them with a balanced line, or a balun (a la VK2JR) and make sure everything you do leads to an s.w.r. of unity, and of course in the best circles have separate antennas and feed lines for each band.

One of the Gawler boys, none other than Les 5AX, after a frustrated effort to do all these things, and finding that the nearer the s.w.r. got to unity the greater was the T.V.I., finally came to use an antenna of unknown title that consists of a Vee, come dipole, neither horizontal nor vertical, out for 80 metres according to the formula and fed with a 50 ohm line (coaxial) that loads beautifully on 80, 40 and 20, with an s.w.r. of anything above 10 to 1, yet causes no T.V.I., enables him to work DX or local on any of the three bands with as good a report as anyone working at the same time. If anyone can tell Les why it works, then they will be in the big prize category. Of course he is on s.b. so perhaps that is the answer. He is now engaged in the construction of a 20-beam to end all beams, none other than a full-sized semi-wide spaced affair with more DB per ounce than you could poke a stick at.

Another strange antenna graces the sky in Gawler, but this time it is much more scientific, for it is on 2 metres and at the QTH of Col 5ZHJ. Maybe it has a name, Col has probably called it plenty, but is is a vertical cum horizontal cum circular polarised affair, completed with a special harness that enables phasing, stacking, extending, and when finished will be rotatable in both horizontal and vertical planes to keep tab on the moon for bounce experiments. He is going s.b. for the project and his pal 5ZP, who can't read phone, will do the C.w. end of it. Best of luck fellows, for there is a mighty lot of work ahead of them in this job, but they are going about it in the way of leaving nothing to chance, and certainly no guesswork.

Tubby 5NO and Jeff 5ZP, who share a QTH on the hill, continue to make a name for themselves, but mostly contest and DX wise as you mostly know, congratulations to both of them on their recent successes in this regard.

Brian 5ZBR has been a little quieter lately, his mighty v.h.f. arrays just gently floating in the breeze and perhaps waiting for the next Ross Hull contests, or has the Cortina something to do with it? Looks like a mobile on 6 coming up, no excuse Brian.

Kev 5ZGC has been busy housebuilding, and with business recently but we expect to hear more of him before long, whilst the 7th local member, well, the less said about him the better. So much for Gawler.

While I think of it, slow morse, and not so slow morse transmissions for those wanting to learn or brush up on this, are available among others from VK5LG on 3504 Mondays, 1900 to 2000 hurs, and from VK2AWI on 3550 each night of the week including Sundays, 1900 to 2000 hours, and from VK2AWI on 3550 sions, and for those who would like more concentrated practice some very good tapes are available from the secretary for copying at a very small cost.

Visits to this QTH lately have included Dudley 2DQ, that eminent receiver constructor (Deltahet I think he mentioned a few times), who now has that receiver functioning on some of its 200-yard dial, and generally speaking is very satisfied with the many hours he put into its construction. If anyone is trying out the same work Dud. would be pleased to help hammer out any of the snags he met up with, he can be found on the air most nights on 3575 s.s.b., and usually puts in a heavy signal to VK5.

Ron 5KS dropped in the other day for a few minutes to have a look at a few things and was checking up on receiver filters and the like, he is playing with a mechanical filter to improve his already excellent signal and receiver. There is an example of what can be done the hard way, for every bit of gear in the Riverton shack is home-brew, receivers, transmitters, test instruments and so on, and if you have worked him on any of the bands think you will agree that there is not much room for improvement. Ron gives that mode of transmission you have to go the lie to so many critics of s.b. that to go to "Commercial," he has shown that it is not so.

Of course there are others of the gang who have done the same, and among them are, for instance, Reg 5QR, who has constructed from the ground up, an all band, selectable sideband transmitter, a complete mobile transceiver on 7 megs, and just for luck another all-band, all-convenience transmitter that finished up a perfect match for a 32S3. Al. 5MF has an all home constructed station, all band and so on, crystal grinding and all, and if you want to see how it can be done, then their rigs are an example for anyone to follow. Ken 5KC must not be overlooked either,, for he has done his share of this same kind of work, as has Lee 5BH, who sports an excellent transmission from a home-brew rig. Ted 5MO was not happy until he made up an outfit that could only be described as an improved HT32, Ron 5MK went about a crystal filter rig and came up with a signal that anyone could be proud of, whilst Phil 5NN scorned all commercial gear and rolled his own, which with a much publicised linear has become a standard for comparison.

Allan 5OH copied a well-known transceiver to excellent result, Chas. 5ON went ahead and produced an outstanding phasing rig, whilst Nobby 5WH has made up so many that it is hard to know what his latest is, but think it to be a crystal filter job by the sound of it.

All of this adds up to the fact that it can be done, and done well, all these fellows have demonstrated that the constructive art is not a lost cause in this State anyway, and is further encouragement to many others that must follow "in the rush to join the strength."

So there you are Pansy let that be a lesson to you, and don't let it ever be said again that you can't read sideband, for if you keep going that way you will "read nothing."

Mobile s.s.b. operation seems to have scooped the pool, too, for at any week-end or holiday the many mobile signals on 40 or 80, and on DX on 20 comprises a good proportion of signals heard. With the recent successful introduction of the mini-whips (helical wound) thus providing a more flexible and easier carried set of aerials, there has been quite an upsurge of mobile work, which, with the added power or resulting (talk) power of s.b., has made even DX whilst mobile a piece of cake. So if you are not already in that gang, don't overlook that extension of your operating activities.

And of course an easy extension to your activities, if you have s.b. on 14 or 28 megs, is to make up the transverter, and there are many designs to follow if you don't want to work it out for yourself and go v.h.f. George 5GD is the latest one heard of who is doing just that, and it is understood a very snappy final is to be included.

Just how economical can you get? Heard the other night that Phil 5NN disposed of

OBITUARY

BERNARD (BARNY) SMYTH

The VK2 Division lost a very keen supporter when Barny Smyth passed away suddenly on 27th April, at the age of 51 years.

An Associate member of the Institute, Barny was a member of the S.W.L. group. In recent years he gave considerable assistance to the Disposals Committee and when the official station (VK2WI) was being erected at Dural, he was one of those who erected the antennas.

The Institute was represented at the funeral on 29th April by the Divisional President, who tendered the sympathy of all members to Mrs. Smyth and the family. A floral tribute was also forwarded on behalf of Council and members of the Division.

WALTER H. HANNAM (VK2AXH)

It is with sincere regret that we record the death of Wal Hannam, VK2AXH, who passed away at his home at Terrigal, N.S.W., on March 15 last. He was one of the best known and most colourful old-timers of Amateur Radio, both in this country and in New Zealand.

Wal had not enjoyed good health for some time prior to his death, but remained active on the air, and when we last saw him he appeared to be enjoying himself at the Gosford Field Day in February last. However, he suffered a heart attack and passed away just two months short of the 80th anniversary of his birth.

From another old-timer, Joe Reed, VK2JR, we learn that such early experimenters as Wal Hannam, Charlie McClurcan, Jack Pike and others were active around 1908, and on 12th March, 1910, at the instigation of George Taylor, organised themselves into what was then called the Wireless Institute of N.S.W., the forerunner of the present Wireless Institute of Australia.

As many readers have probably heard, Wal Hannam was the first secretary appointed to this organisation. In 1911 he joined Douglas (later Sir Douglas) Mawson's expedition to the Antarctic as a radio operator, the transmitter used being a 2 kw. Telefunken. Messages were transmitted from Mawson to Macquarie Island, where they were relayed to Hobart. On returning from the Antarctic, Wal enlisted in the 1st A.I.F., and served overseas with the Divisional Engineers, again in radio.

His funeral at the Sydney Northern Suburbs Crematorium was well attended by members of the N.S.W. Division, among those present being representatives from Sydney, Central Coast and Hunter Branches, while Council was represented by the President and Vice-president. The sympathy of all members was expressed to the relatives. By a strange coincidence, Wal's funeral took place exactly three years to the day from when he unveiled a plaque at the opening of VK2 Divisional Headquarters at Crow's Nest, a suburb of Sydney.

SOUTH AUSTRALIA

The S.E. Radio Group will hold a Convention on the Queen's Birthday week-end in June. Registration is to close on May 24th with the Secretary, Box 542, Mount Gambier. Accommodation will be arranged providing a deposit is forwarded. A tent will be erected at the Lake for those who wish to look after themselves. Indications are that quite a large number of VK3 boys will be making the trip, and whilst this information may be a bit beyond the stated registration date, it will act as a reminder and for those not already booked, enable them to make their own arrangements. A really good action-packed and interesting week-end is assured.

one of his dray-load of receivers, and when delivery was taken found that the screen supply for his linear was also gone. So now he has to operate like the rest of us peasants with no linear, or at least until he makes up an alternate supply. What is Phil using for a hearing aid at present? None other than a 1942 job that was dug out of the box, and having a b.f.o. but no control for it, found that his hot breath was enough to vary its frequency across the pass band!! Mr. Larson E. Rapp please note.

Heard Bill 5XB the other day describing his outfit to some glamorous DX call, when he included the antenna as "a horizontal-vertical piece of wire so high." More details of this would be appreciated, for it could even be used as a Funny World subject. Or don't you know what Funny World is Bill? Anyway Kingston has a worthy member in Bill who usually livens up any net he enters.

—Comps 5EF (Pro. 5PS).

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TASMANIA

Our May general meeting was very well attended with about 40 members and several visitors present. Ted 7EJ gave us a rundown on the Easter Federal Convention which by all accounts was very well organised. Our lecturer was Mr. Max Burn, of D.C.A., who talked on Aircraft Radio Navigational Aids and followed with two excellent films on navigational aids. The subject was very well received by all, and as our worthy president, Tom, said in his "thank you" speech, "One cannot help marvelling at 'Smithy,' his contemporaries, who flew vast unknown areas by the seat of their pants and the grace of God." Watch out, Max, you may be trapped for another go in the not too distant future.

Your VK7 Council this year is the same as last year, as you read last month (that is if you read these notes), and so are the offices they hold. Their jobs were sorted out at the April council meeting, and I am happy to report "no changes." Although President Tom 7AL was issued with an ultimatum—"Get an aerial up or there'll be a no confidence vote"—I think he is going to co-operate—we frightened him!

W.I.C.E.N. is getting under way in VK7 in a big way now, there are about 15 stations mobile on the 6-metre net in the south of the island, mainly in the Hobart area, and the Northern and North-western Zones are getting themselves organised and we hope will soon have their 6-metre mobile rigs in operation. H.Q. Zone has an ex-taxi co. a.c. base station which should be installed in the club-rooms before long, once the conversion is completed.

Now for the winge session, short and to the point this time. Not all the subs. are in yet. If you have paid yours then thank you for your co-operation, if your dues are still outstanding, then what about it, don't you think it is high time you did the right thing?

Associate member Mike Hooper (soon to have his call we hope) has "volunteered" (after some urging from "Rasputin" 7ZZ) as co-ordinator for the Youth Radio Club Scheme. Mike, who works shift work, should be very capable of carrying out this job, and our thanks to you, Mike, for allowing yourself to be talked into this position. We have one High School (Taroona) in the Headquarters Zone, where the science master and some 20 pupils are very keen indeed, and I believe Latrobe High School in the N.W. Zone also will be another station.

The congratulations of VK7 Division go to the VK5 boys for winning the 1964 R.D. Contest. I know it is late but better late than never. It will soon be R.D. time again, so let us make an all-out effort in Tassie this year and see if we can take it next time.

Our clubroom fund has been revived again now that our I.T.U. commitments have been met, and it was very pleasing to see at the May meeting three members (not councillors) offer themselves as a committee. If anybody has any fund-raising ideas let someone know about them. We are about half way to our four-figure targets, so our own building is s-l-o-w-l-y becoming less than just a dream.

—VK7ZAS.

NORTH-WEST ZONE

Once again another good roll-up of 17 members to our May meeting, and everyone agreed that it was a very interesting evening.

George 7XL was the lecturer, and he gave us some good practical circuits of transistorised converters and power supplies. Not only that, but George had a working model of each, and they both worked fine business. Thanks George. There should be a lot more mobiles about from now on.

Had a letter from our old friend Basil, ex-7BL, at Spirit River. He enclosed his new QSL card in colour, which is supplied gratis by the Canadian Provincial Government. Tasmanians, please note. Basil gets plenty of contacts mainly because of his accent, and works mainly on 40 metres.

David 7MS can be heard quite often with his new s.s.b. transceiver. Ken 7AI has really taken to the air, this time in a plane. Believe he has been flying solo for quite a while. Bob 7ZAA has been confined to bed but should be up and about by the time he reads this.

Nice to see this zone well represented in the R.D. Contest results. I reckon there will be even more starters this year.

John 7JF has settled in at his new home at Gowrie Park and is getting good results with a long wire antenna. Max 7MX is still very active on 80 metres and works ZL regularly.

All the best of DX. 7KH.

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SUNSPOTS

For those interested, Zurich final analysis of sunspot numbers for 1964 indicated a yearly mean figure of 10.2

During 1964, sunspots of both old and new cycle occurred in the Northern Hemisphere. However, insofar as the Southern Hemisphere is concerned the new cycle is considered not to have started until February, 1965.

The mean number for January, 1965 (Northern Hemisphere) was 18.5 and predictions for the following months for both hemispheres indicated a very slow upward trend to the figure of 20 by July.

For comparison purposes the relative number at the time of maximum sunspot activity is in excess of 200.

—Eric Trebilcock (L3042).

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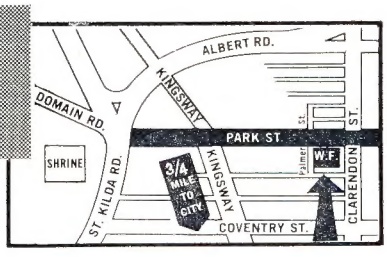

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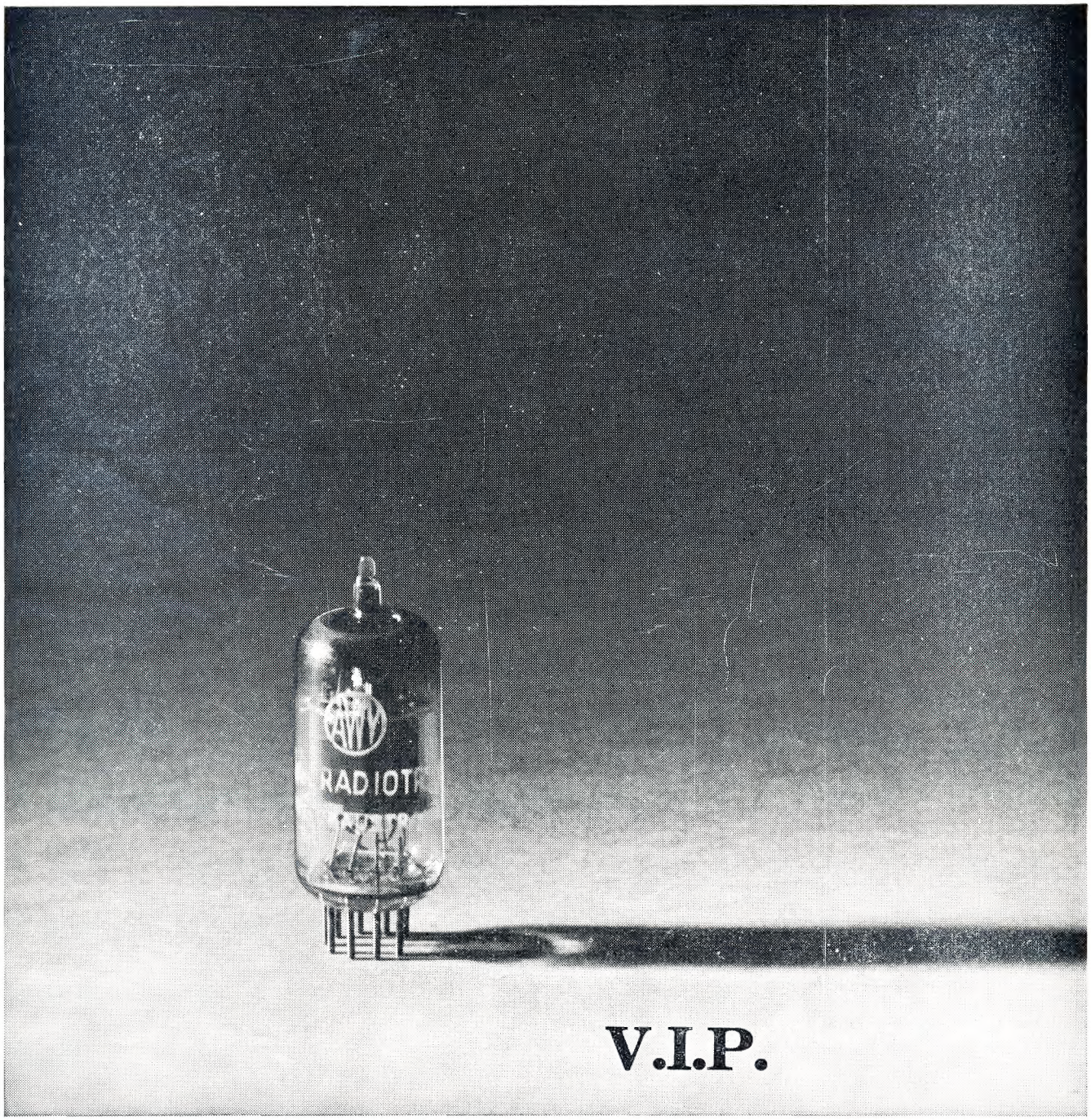

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